The Lumleian Lectures

ON

HEART INFLAMMATION IN CHILDREN.

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LECTURE I.

MR. PRESIDENT AND GENTLEMEN,—When I was honoured by the invitation of the Censors' Board to deliver these lectures, whatever may have been my doubts—and they were many—not one of these had reference to the subject upon which to discourse. That point, indeed, is largely decided by custom, but it was settled more imperatively in my case by the knowledge that for me there was but one way of fulfilling the allotted task. Could I but rehearse with tolerable fidelity some of the clinical experience of past years, especially could I do so in reference to some particular branch of practice to which chance had given me a freer access than falls to everybody, then, and then only, could I hope to interest an audience such as this, and so I chose the subject of Heart Inflammation in Children.

The study of heart disease in childhood, busy as it has been of late years, had hardly a place in the early observation of such lesions. Seventy years ago, within the memory of one at least of the Fellows of this College, when Laennec was announcing the physical signs of heart disease, little mention was made of children. Fifty years ago, when Rilliet and Barthez wrote what was long the best-known book about children, the part devoted to heart disease was meagre and halting, and pericarditis (which we now know to be common with children) was spoken of as of rare occurrence and obscure signs. Coming to later times and to our own country, it is curious to note how the great workers upon this subject—Latham, Watson, and Walshe—almost ignore little children.

The cause of this delayed study is obvious enough: the man was an easier subject than the child. The adult heart, moderate in pace, of decided rhythm, and with a clear distinction of sounds and their intervals, is the easiest to appreciate in health and to detect and define in disease. Moreover, chronic valve defects, both evident and enduring, occur most frequently in adult life. Hence it was that Laennec and his contemporaries concerned themselves most with the physical signs and symptoms of gross structural disease; but the very beginning of heart disease, the active stage of its inflammation as it occurs in young subjects, was imperfectly known to these early observers. It was, in fact, largely pieced out by the bold assumption that the physical signs of chronic disease might be made to apply, with some modification, to that which is more recent.

It is now frankly admitted that the early diagnosis of heart inflammation is among the most difficult problems of practical medicine, and that at the first it depends largely upon the presence or absence of pericardial rubbing, a sign of inflammation to us now (speaking generally) gross and palpable, but of which the significance was for a long time altogether missed. Laennec was not, indeed, ignorant of the now familiar sound made by pericarditis. He heard and described it; but for reasons not hard to understand he missed its meaning. "For some time," said he, "I thought that this noise, like the cry of the leather of a new saddle under the rider, might be a sign of pericarditis; but I have since convinced myself that it is nothing of the sort." And so when in actual touch of the truth he goes off upon theories of sound-producing gases, leaving to others, and especially to three distinguished Fellows of this College—Latham, Watson, and Stokes—to recover the path and to follow it to the end. Thus, of the two main factors of cardiac inflammation, while pericarditis had to await investigation until a comparatively recent period, endocarditis may be said to await it still. At the same time, the conflicting opinions of to-day upon many questions of physical diagnosis, upon the displacement of the heart in pericardial effusion, upon the meaning of doubled sounds, upon the proper signs of pericardial adhesion or the earliest indications of mitral stenosis; these, with other instances, supply evidence enough that to this hour we are seeking more light.

My purpose in these lectures is: first, to signalise some forms of heart inflammation, forms both insidious and perilous, which are chiefly to be observed among children; secondly, to consider the physical indications of such inflammation, their significance and modes of origin; and thirdly, to review the main facts of heart inflammation as it occurs in children, with reference to its prognosis and treatment. It would seem, at first sight, that children were the most promising subjects for the physical study of heart inflammation. In the case of adults there are many hindrances to accurate observation—fatness, great muscular development, and the interference of emphysematous lungs; but in the child, with all these obstacles away, with but a thin wall of separation between the heart and your finger-tips, and the organ within touch, almost within handling, its position, its shape, and its acts can be measured and felt, all that is wanting is the actual sight of it. The heart of a little child, I say, at the first blush would seem to be as simple in physical as it is in moral respects; but experience teaches otherwise. The child's heart holds as many secrets as the man's and is even more deceiving.

Cardiac inflammation in children, as is well known, occurs chiefly in connexion with rheumatism if young children be excluded almost wholly in that connexion (Table A), yet the

TABLE A.

One Hundred Cases of Heart Disease examined post mortem during eleven years.

Rheumatic—boys, 22; girls, 32	54
Non-rheumatic—boys, 22; girls, 24	46
Ages of the Rheumatic.	
Between two and four years	2
,, four and six years	4
Six years old	6
Between six and twelve years	42
Total	54
Ages of the Non-rheumatic.	
Four years and under	32
Between four and six years	5
Above six years old...	8
Age omitted	1
Total	46

rheumatism is often ill expressed in the way of arthritis and sometimes spares the joints altogether. Strictly speaking, carditis—inflammation, that is to say, both exocardial and endocardial—is exclusively rheumatic. Pericarditis alone, as Table B. shows, is met with in tuberculosis, in

TABLE B.

Distribution of Eighty-three Cases of Heart Inflammation examined post mortem.

1. Periendocarditis (carditis) 48
   1 was a case of phthisis, 1 was doubtful as to rheumatism, the rest all rheumatic.

2. Pericarditis (without endocarditis)... 28

Tubercle...	8	Diphtheria	2
Emphysema	8	Meningitis	1
Pneumonia	4	Bronchitis	1
Septicæmia	3	Chronic arthritis ...	1

3. Endocarditis (without pericarditis) 7

Old mitral disease	3
Slight beading tricuspid (infant with broncho-pneumonia)	1
Ditto, mitral	1
Pyæmia (newborn child)...	1
Chorea	1

2 and 3 almost all young children.

empyema, in pneumonia, and in septic conditions. Endocarditis alone is met with in children far less than in adults, and were we to take post-mortem evidence alone, with remarkable rarity, cases of chorea alone excepted. The rheumatic heart inflammation of children, when pericardial, is always endocardial as well, and when endocardial it is extremely likely, with the recurrence of rheumatism, to involve the pericardium also. Thus, in the heart as elsewhere, as in catarrhal inflammations and tuberculous

development, the differentiation of morbid processes is less marked in the child than in the adult, and a common sympathy more apparent.

The rheumatic carditis of childhood differs in important respects from that of later life. It is, or it appears to be, less intimately connected in time with rheumatic fever; its clinical course is, therefore, more insidious, and its immediate mortality is much larger. Three forms may be roughly indicated—the active, the passive, and the chronic, terms not without objection, yet sufficient for the purpose of labelling. Active carditis, rare in adults, has special characters in childhood, and owing to its sudden origin, rapid course, and high mortality, claims our chief attention. Passive carditis, similar to the first in its physical signs, does not display the same symptoms. It is free from cardiac pain, distress, or dyspnœa, but its existence is suspected owing to the presence of rheumatism, and is discovered by certain physical indications. It is, in fact, that form of carditis which is commonest in the acute rheumatism of the young adult, differing from it, however, in two points—viz., one, that the attending rheumatism is habitually less acute, and the other that there is a much greater probability of acute heart symptoms supervening. Passive carditis shows less in the child than in the adult, because the rheumatism on which it depends shows less, is less acute, and less enduring. In the adult, however little the special cardiac signs may intrude, they are sure of observation because the severity of arthritis keeps the patient to his bed, and the state of his heart is carefully noted from day to day for a length of time. So, it is true, may it be sometimes with children. Only the rarity with them of what is sometimes called "frank rheumatism"—one of the many phrases by which we dictate to disease what it ought to be—their slighter pyrexia and fugitive joint pains serve to remove these young patients the earlier from observation; and so apparent convalescence may be reached in the absence of rheumatic pain, and the child accordingly dismissed when the cardiac inflammation is in full swing.

Of chronic carditis I shall have but little to say—it is, in fact, pericardial effusion. A rheumatic pericarditis (with which we know endocarditis to be combined) presently gives signs of effusion, the amount of which may be measured by percussion from day to day and week to week, alternately increasing and decreasing with no active distress or any other suffering than that which is due to some dyspnœa. It is not special to childhood, but the constant alternation of fluid, its ultimate disappearance, and the rarity of symptoms calling for paracentesis are its distinguishing features at that time of life.

A diagram on the table shows the daily changes of the cardiac area over a long period of time (more than a year), during the greater part of which the patient (Ray, Fig. 4) was up and about.

Active or acute carditis has for us now, for the reasons just stated, the chief interest. In the course of a slight rheumatic attack or, it may be, following it with an interval of apparent convalescence, active carditis is suddenly announced by restlessness, increased pallor, and a curious aspect of anxiety, together with dyspnœa, delirium, and sometimes obstinate vomiting. Such symptoms suddenly transform a trivial illness into one of extreme gravity. Often there is heart pain; and tenderness over the heart region is a common and important symptom. There may be little rise of temperature and not much quickening of breathing or of pulse, but the act of respiration is distressing and is accompanied by the short expiratory grunt so characteristic in the acute chest affections of young children. Together with these symptoms there is a preference for the raised position and some children, with great distress in breathing, will lean forwards in search of relief.

The posture, the pallor, the restlessness, and look of alarm, coupled with the dyspnœa, due mainly to enfeebled inspiratory effort, all these are symptoms so characteristic that active carditis in a child may be detected almost at sight. Certainly when the chest is bared and both eye and hand take part in the observation the character of the heart's impulse will remove any doubt that may remain. And when these symptoms rapidly progress to a fatal end, as they often do, it is sometimes prostration, sometimes delirium, sometimes persistent vomiting, that shows the most conspicuously; but the main source of the symptoms, however these may arrange themselves, is manifestly cardiac failure—failure which is often so sudden that it is not possible to attribute it to texture degeneration. It is this acute form of carditis alone that threatens death as an immediate result. We are wont to regard them all—whether active, passive, or chronic—as having a common origin in rheumatism. Without impugning the correctness of this belief it must be insisted that premonitory symptoms are by no means confined to the joints. They are, in fact, so various, that it is difficult to name any one of them that is invariable or common to the whole series. Sometimes, for example, it is not articular but limb pain that accompanies or precedes the heart inflammation. Sometimes it is dyspnœa or cardiac pain. Sometimes in the recurrence of an attack, which at the first was articular and obviously rheumatic, the old pyrexia will reappear, but in the fresh attack the heart will be actively concerned while the joints escape altogether. In no small proportion of cases wasting and sweating are the main premonitory symptoms, and the history of antecedent rheumatism will be extremely vague. Even in those instances—the majority, no doubt—where the rheumatic nature of the affection is beyond question it is noticeable in children how soon joint pains recede and the condition of the heart occupies the whole attention, whether from the changeful character of its physical signs or else owing to the sudden appearance of those urgent symptoms of heart failure of which I have spoken.

The mortality of these patients is considerable. I cannot state it precisely, for in cases collected with a view to showing characteristic symptoms the death-rate is likely to be higher than when the object of the collection is to illustrate the good results of treatment. A single example will serve to bring before you the special characters of this active and perilous form of carditis in childhood, a form so rarely observed in after life.

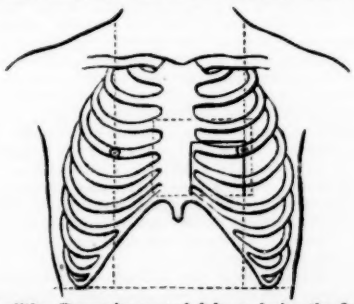
A girl aged seven years and ten months, anæmic and ill nourished, was admitted to the Hospital for Sick Children, Great Ormond-street, on April 28th last, with a history of six weeks' pains in the limbs, and for the previous three days swollen and painful joints. These symptoms had attracted but little notice in the family until twelve days before admission, when the child complained of pain at the heart, was seen to be short of breath, and had to be propped up in bed. The girl had never had rheumatism before, and was not of a rheumatic family. On admission the respiration was 36, the pulse was 120, regular both in force and frequency, and the temperature was 99° F. There was marked pulsation in the vessels of the neck, but no venous enlargement elsewhere. The area of cardiac dulness was not increased. A systolic thrill could be felt at the apex, and a loud blowing systolic murmur heard at the same place and conducted round to the back. Inside the nipple and a little above it the second sound was inconstantly reduplicated.

For the following three or four days no particular change occurred. The child soon ceased to have pain, the area of heart dulness did not alter, nor did the heart sounds. The child was quiet and restful, but lethargic. Anæmia was more extreme. On the fourteenth day of residence, however, a marked change occurred. It began with an attack of nose bleeding, followed by a sleepless night. The child complained of headache. The temperature rose to 102°, although there was no return whatever of joint pain. The heart was tumultuous in action and its impulse was forcible and diffuse, the apex being apparently in the fifth space; the murmur was now of harsher pitch, so-called "musical" in character, and was audible a finger's breadth outside the nipple line, where it abruptly ceased. Within the nipple a very slight diastolic sound was heard, the commencement, as it seemed, of friction, which was afterwards distinct. The urine was now found to contain a trace of albumen and some blood. Hereupon (we have now reached the thirty-first day from the first heart pains and dyspnœa) the most characteristic signs of active carditis appeared—that is to say, the child, though free from actual pain and without marked dyspnœa, was anxious and restless, the little sleep she got being disturbed by muttering and painful visions. A friction sound (to and fro) was now audible, its maximum intensity being at the ensiform cartilage, but it was distinctly heard as high as the second costal cartilage. The pulse (140) was still regular, and the temperature was from 100° to 101°. The area of cardiac dulness now for the first time began to enlarge, transgressing the left border of the sternum to the right, and a finger's breadth outside the left nipple to the left, the upper limit reaching the third space. It continued to enlarge somewhat for a while, as shown in the figure, but presently receded and at death was hardly larger than on admission.

Without staying to record daily changes—such as the

distinctive friction rub and thrill, the varying character of the apex murmur, the heart's action now more, now less forcible and excited, while the veins of the neck began to show marked reflux, the patient being restless, free from pain, but tender on percussion over the cardiac area—we come to May 31st, the forty-second day from the first heart symptoms and within five days of death. It was on this day that vomiting set in, and it persisted. The area of cardiac dulness rapidly decreased, and the rub was but indistinctly heard. There were increased restlessness, difficult, groaning, yet not very rapid breathing, intense anæmia, constant sickness, pericardial effusion rapidly diminishing the while. The regurgitation in the neck veins increased, and now for the first time (a few days before death) œdema of the legs and signs of pulmonary œdema were noticed.

So the story closes on June 5th. At the latest stage there was considerable engorgement of the lungs, perhaps accelerating death a little. The whole duration of the carditis was forty-seven days. The more acute symptoms occupied thirty days, and the most urgent symptoms (constant vomiting being the most prominent, pericardial effusion disappearing the while) lasted for less than a week. Of the post-mortem examination it will suffice to say that the heart weighed nine and a half ounces, showing both dilatation and hypertrophy, the latter as regards the right auricle and ventricle. The mitral valve admitted three fingers, and at its extreme edge there were some



Acute carditis. Decreasing area of dulness during the five days preceding death. A.C.D., May 30th, dotted line. A.C.D., June 5th, continued line.

minute granulations. The other valves were normal. The pericardium was universally adherent anteriorly and posteriorly. No fluid remained and the surfaces were separated with difficulty.

Time will not admit of separate mention, even in this brief outline, of other examples of a similar kind. They have a strong family likeness, but the end does not come always in the same way in the fatal cases. In a certain number, of which I have had two well-marked cases within the last year—one fatal and one recovering—typhoid prostration is the main feature, the patient lying apathetic and but partially conscious. In the child aged nine years who recovered this prostration was so extreme that some days the motions were passed into the bed. Within the last three years I can recall sixteen examples of active carditis of this pattern, all patients of my own. Six were boys and ten were girls; four only recovered. As many as eight, half the number, were under seven years of age. The four oldest were between ten and eleven. The pericardium was adherent in all the fatal cases, and in only one was there extensive valve disease. In most, the endocardial change was limited to small granulations on the mitral valve. It is not easy to summarise the several symptoms. It may suffice to say that in one case alone were joint pains prominent and long-continued. In one patient pain affected the limbs, but not the joints; in two, slight rheumatic pains were suddenly replaced by prostration, the while the physical signs indicated pericarditis.

TABLE C.

Sixteen Cases of Acute Carditis.

Boys, 6; girls, 10.

Average age, 8 years; the three youngest: 4·2 (died), 4·8 (died), 5 (recovered). The three oldest: 10·5 (died), 10·8 (recovered), 11 (died) Recovered, 4: boys, 1; girls, 3. Died, 12: boys, 3; girls, 9. Previous attacks of rheumatism in 12; of acute carditis in 2. Duration of acute symptoms: longest, eight days; shortest, one day. (Except one patient recovering after nine days' acute symptoms, and one who had prostration three weeks before death.) There were subcutaneous nodules in 4 cases. Four patients were admitted for cardiac pain and dyspnœa, rheumatism in its articular form being a thing of the past. In three cases wasting and sweating were the most prominent symptoms. In one instance a condition of drowsiness and apathy had followed epigastric pain and dyspnœa, occurring six weeks before, no obviously rheumatic symptom having been noticed for the past three months. There was a history of former rheumatism in 12 cases. Subcutaneous nodules were noted in 4.

In the fatal cases, as I have elsewhere shown, it is the rule to find adhesion and the exception to find the heart free. At the same time it is the rule to hear exocardial rubbing, often continued until near death, and the exception to hear none. Diagnosis, therefore, founded upon this point—"rub or no rub"—is as likely to be wrong as to be right (Table D).

TABLE D.

Pericardial Adhesion in relation to Friction Sounds.

A.	Characteristic friction sounds heard shortly before death in	29
	*Pericardium is adherent "universally," "generally," "entirely," "everywhere" and "firmly," "extensively," in	15
	†Pericardium is adherent "and also to chest wall," "partly and recently adherent," "a few adhesions," in	5
	†Pericardium is not adherent, but there exists "pericarditis," or "roughened pericardium," or "shaggy cords," in	5
	†No adhesions mentioned (probably none existed) in	4
B.	No friction sounds audible in	17
	†Pericardium "adherent throughout" in	6
	*Pericardium "adherent at apex" and "partially adherent" in	3
	†Pericardium contains "excess of fluid" in ...	3
	†Pericardium contains soft buttery lymph in ...	1
	*Pericardium contains recent flakes of lymph in	4
	* Physical signs misleading in	22
	† Physical signs informing in	24

Yet it may reasonably be supposed as regards *recent* adhesion that the mere act of dying favours it; so that, taking all the cases together, fatal and non-fatal, adherent pericardium may be a less frequent final event of rheumatic carditis in childhood than our post-mortem records of these acute examples would lead us to think. In some instances the post-mortem examination discloses unusual conditions, whether of pericardium or endocardium, such as may probably have influenced mechanically the mode and the distress of dying. Thus in a girl under five years of age, who became very blue and suffered a kind of anginal attack just before death, the appendices of both auricles were pretty firmly adherent to the adjacent portion of the heart. In another instance, that of a girl four years old, there was sudden collapse and death. Post mortem, besides pericarditis, a continuous decolorised clot extended through the tricuspid orifice from auricle to ventricle of the right heart.

The pulse in these cases is small and of low tension. The sphygmographic exhibition of pulse tracings is less satisfactory than in adults, but in some of the examples of acute carditis, of which I am now speaking, there is marked dicrotism, with some unevenness. It is Dr. Sansom's opinion that excessive degrees of dicrotism are not met with unless a severe form of endocarditis be present. It may be so; but I doubt whether the degree of dicrotism is an accurate measure of the patient's condition or progress, for in some instances, as in the one here represented, there was but little difference in this respect between the tracing on a day when the child was at his worst, almost unconscious, and nine days later when, although still prostrate, he was plainly on the way to recovery. The temperature is not greatly raised in acute carditis and I have never met with hyperpyrexia. Subnormal readings are common. It is difficult to connect the several variations of body heat with corresponding changes in the child's condition.

Of the physical signs of rheumatic carditis in children, whether active or passive, the pericardial are the more obvious and the more immediately important. The concurrent endocarditis (whose presence may be assumed), difficult enough to appreciate in any case at an early stage, is more or less masked by the presence of exocardial signs.

The course of pericarditis, like that of other serous inflammations, is conventionally divided into distinct stages, which are described as successive, but are, in fact, concurrent. Thus the plastic exudation of pleurisy hardly precedes fluid effusion. The minute crepitus of commencing

pneumonia is heard side by side with the signs of consolidation. There is no orderly passage of the inflammation as a whole from stage to stage. There may be more of plastic or more of fluid exudation, or either the one or the other. In the case of pericarditis especially it is important to notice that its earliest physical signs are conjoint, due partly to distension by its fluid product and partly to the audible attrition of the more consistent product. Pericardial inflammation, indeed, at the first neither distends the sac nor causes audible rubbing. It is recognised, or rather it is suspected, by fallible signs, such as altered rhythm with quickened and tumultuous cardiac action. Extra area of cardiac dulness does not appear until the fluid is sufficient to push aside the edges of the lungs and friction rubbing does not appear until the earliest exudation has acquired some consistency; but the two signs—friction and extended area of dulness—appear together, "not at the first blush of pericarditis," as Sibson's phrase is, but a day or two later.

And observe that from this point, from the earliest physical evidence of pericarditis to the very end of it, the progress is measured, not by the rub, but by the daily changes in the area of cardiac dulness. In the acute cases the increase of fluid is usually rapid, and reaches its term within three or four days, when the tide turns, the ebb being slower than the flow. In the chronic cases the changes of area are also frequent, but the several alternations of fluid, now more, now less, now again more, may occupy much time. Pericarditis is thus analogous to pleurisy, both in the signs that discover it and the mode of its measurement; but the effect of the fluid pressure is quite different in the two cases. In pleurisy the yielding lung is compressed into smaller and smaller space as effusion increases; in pericarditis, as we shall presently see, the effect of pressure upon the heart is not always the same. Commonly the organ is displaced upwards into the narrower portion of the thorax, where it presses against the sternum and costal cartilages, and friction is not abolished but made more loud and grating. But though the area of friction and its intensity are apt to be greatest where effusion is at its height, there is no rule with regard to rubbing sound which is without exception. The increase of fluid may separate the ventricles (saving the upper part of the right ventricle, and the great vessels) from the chest wall by a layer of fluid, a layer so thin that firm pressure with the stethoscope will serve to bring the pericardial surfaces into contact and restore the friction sound.

It is within the experience of every clinical student that pericardial friction is a fitful sound, coming and going with absolute suddenness. It may be so fugitive that on the same day, even within the same hour, one will chance to hear it and not another. Moreover, as I have shown, rubbing sound is not inconsistent with extensive adhesion. (See Table D.) Thus the hazard of friction rub as a physical guide is both early and late, early because at first it is only by happy chance that we hit upon it, and late because exocardial sound, rub-like, may be still audible when actual attrition is rendered impossible by firm adhesion; and it may be said further of this friction sound, as of other things in nature, that the noise it makes is not proportionate to its importance. The slightest scratching early in the disease may be the prelude to severe, perhaps fatal, carditis; but, on the other hand, loud and extensive rubbing sound may become audible when effusion is subsiding and the improved aspect and manner of the child clearly indicate that the danger has passed. Fallible as it is, let us make the most of it. Observe especially the cardiac tenderness that accompanies it in acute cases—a most suggestive sign,—the change that it undergoes, or rather the changes, with varying pressure of the stethoscope, and sometimes also with altered position and with time. There are some morbid sounds of the heart apt to be imputed when not actually present—notably, as I shall presently try to show, presystolic murmur; there are others more often recognisable than recognised. Of these latter friction rub is the chief, and the main reasons for its being overlooked are: (1) that at its beginning and at its end it is often murmur-like, and so mistaken for endocardial; (2) that it is often fitful and only encountered by chance; and (3) that the observer does not always employ the right method for eliciting it—viz., varying pressure, frequent examination, comparison of its character to-day and to-morrow in various positions of the patient.

In some instances a rub-like exocardial sound will be heard when post-mortem examination discovers nothing to make it. The occurrence in the case of extensive and firm adhesion is not uncommon, as we have seen; but rarely what is taken for friction by expert observers is found after death to co-exis with a smooth and apparently healthy pericardial surface. Thus a girl twelve years of age, admitted to hospital on Aug. 26th, 1893, had a double rub at the junction of the fourth left costal cartilage with the sternum, audible four days before death. Post mortem the pericardium, which was very thin and contained an excess of clear fluid, was found to be smooth and without trace of deposit. Again, a boy aged eight, with extreme anæmia, suddenly developed a loud double friction rub, which, on his death, some time later, was wholly unexplained on post-mortem examination.

Fortunately, pericardial rub is not the only physical sign of pericarditis; there is pericardial distension as well. These signs, as has been said, arise together, but neither of them is appreciable at the very beginning of the inflammation. It takes time both for the exudation to grate and for the fluid to distend its sac. The very first physical indication of pericarditis is a quickened, tumultuous, uneven action of the heart, which varies more or less in individual cases, and of which the precise significance, whether as "threatening" endocarditis or actually signifying it, may be open to question.

There are certain characters, both clinical and anatomical, which distinguish these acute cases and deserve a moment's consideration. *Clinically* (1) the cardinal symptom is rapid, sometimes quite sudden cardiac failure, failure which the physical signs very imperfectly explain, being precisely the same as may occur with passive carditis, where there is no similar failure and no threatening of it; (2) the general symptoms are mainly cerebral, or at least nervous, delirium, constant vomiting, and sudden prostration; and (3) the fatal cases very closely resemble the non-fatal, but when death is escaped recovery is complete and sometimes rapid. *Anatomically* (1) the pericardium is always adherent, often extensively and firmly, the adhesions being more or less recent; (2) the endocardium, generally speaking, is but little affected, the tiny granulations upon the mitral valve (which is the characteristic appearance) being quite insufficient to render the valve incompetent; and (3) the muscular substance of the heart undergoes but slight degenerative change.

Why do these patients die, and what makes the difference between living and dying? Physical signs, it is true, are the more threatening when they show exocardial inflammation, or when the heart is already diseased owing to earlier attacks. Changeful endocardial murmurs, with tumultuous action yet no general disturbance, may at any time suddenly exhibit pericarditis as well, with all the symptoms of active carditis; but the first notice of danger comes not so much from the heart's physical state as from certain ominous *general* symptoms—restlessness, dyspnœa, delirium, prostration, and vomiting—for the most part sudden and quickly fatal, which, for no reason known to us, attack some rheumatic patients and spare others. The early appearance of such nervous symptoms is the best of all guides as to the future. Thus a child admitted with carditis signs, but quiet and reposeful, had hallucinations as to people visiting him. Some days later he became prostrate and then unconscious, and narrowly escaped death. And not only are physical signs of small service in prognosis, post-mortem examination fails to explain the fatal event. The heart failure is too sudden to be explained by muscular degeneration, and, as a matter of fact, this is not present to any great extent. The myocardium is chiefly implicated when the inflammation has been of long standing. Old adherent pericardium perhaps shows it best; but in recent inflammation fatty changes in the muscular fibres are not generally observed.[1]

I have here a series of very faithful drawings by my friend Mr. D'Esterre, showing (1) the normal cardiac muscle; (2) the cardiac muscle from a child who died very quickly from cardiac failure within two days of pericarditis being superadded to endocarditis. The muscle is but little altered and its striæ are distinct. A second drawing from the same subject, less magnified, shows well the pericarditis. (3) By way of comparison with the last there is a drawing showing the degenerate muscle of old adherent pericardium, where striation is absent and the fibrillæ are widely separated. (4) Midway between these is a specimen showing distinct myocarditis, inflammatory elements being present in abundance. The specimen is taken from a boy who lingered for some time in a condition of extreme prostration.

In consideration of the marked and agonising degree of

[1] See Bramwell, Diseases of the Heart, p. 305

dyspnœa shown by some of these cases of acute carditis Dr. Lees suggests the question, "Is there a dextro-cardiac respiratory centre?" In the absence of any disease of the lungs, and with but little defect in the aeration of the blood, "how," he asked, "is this very obvious dyspnœa, the result of pericarditis and of nothing else, produced?"[2] Some might be content to answer that there is not pericarditis alone, but carditis, and that the implication of the whole substance of the heart must so weaken it as to account for the symptom in question; but the extremity of the dyspnœa would seem to be better explained, in Dr. Lees' view, by "the working of an automatic reflex from the right ventricle to the respiratory centre. Such reflex is called into action by the acute failure of the right ventricle resulting from the pericarditis, or by irritation of the subpericardial nerves." The paper is formally addressed to physiologists, and it is for them to answer.

In conclusion, something remains to be said of passive carditis, of the signs of inflammation, that is to say, whether endocardial or exocardial, appearing without active general symptoms in the course of rheumatism, as is habitually the case with the adult. There is no more striking or more important feature of heart disease as it happens to children than the close relation between endocarditis and pericarditis. A recent rheumatic endocarditis fully developed in the case of the adult leaves little fear of pericarditis presently supervening. With the child that fear is never absent, while in some instances, as we shall presently see, owing to the peculiar character of exocardial inflammation, it remains doubtful to the end whether or not the pericardium has been implicated. This near sympathy makes the distinction between endocarditis and pericarditis less discernible in children and, so long as the inflammation is new, justifies the term "carditis" as applied both to the active and passive form.

The Goulstonian Lectures

ON

THE PHYSICS OF THE CIRCULATION.

Delivered before the Royal College of Physicians at the Examination Hall, Victoria Embankment, on March 1st, 1894,

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LECTURE II.

MR. PRESIDENT AND FELLOWS,—With regard to the behaviour of the heart during diastole, until the last fifteen years it was generally assumed that the ventricle relaxed, but did not actively dilate, and exerted no suction power during diastole. Goltz and Gaule, in 1878, found that there was a negative diastolic pressure in the dog's ventricle when acting well and strongly. When the heart's movements were weak, and the heart no longer completely emptied itself during systole, the suction power diminished. De Jager[3] found in the right ventricle a negative diastolic pressure of from 5 mm. to 38 mm. Hg., and in the right auricle a negative pressure of from 2 mm. to 6 mm. Hg. In all these experiments the heart was laid bare to avoid suction due to respiratory movement. It is difficult to understand how the elasticity of the muscular fibres can suffice to bring this about. Stefani,[4] for the elucidation of this point, performed an ingenious experiment. He filled the pericardium with water, and estimated the pressure which was necessary to hinder the diastolic expansion of the ventricle. He found that this must be much greater when the vagi were intact than when they were divided. The vagi, therefore, appear to influence the active expansion of the ventricle. Whether, as Stefani appears to assume, this is due to a direct influence of the vagi on the heart muscle, or whether the section of the vagi lowers the blood pressure only, is not quite satisfactorily proved.

[2] THE LANCET, Oct. 28th, 1893.
[3] Archiv für die Gesammte Physiologie, 1883.
[4] "Intorno al Modo con cui il Vago agisce sul Cuore." Memoria letta all' Accademia di Ferrara nella, I Dicembre, 1882; Cardio volume, press-pericardica, 1891.

It is theoretically possible that if the contraction of the circular fibres of the ventricle should persist longer than that of the longitudinal fibres a negative pressure might be produced. This has been pointed out by v. Frey.[5] Rolleston[6] has remarked that the narrowing of the venous orifices through the contraction of the circular fibres can give rise to a suction in the ventricle if this occurs later or persists longer than the contraction of the remainder of the ventricular wall. Gaule and Mink[7] refer to the arterial openings. Here the muscular fibres take their origin from the fibrous ring in which the aorta is sunk, and surround the ventricle in spiral fashion; so that at the moment when the ring is widened by the filling of the aortic sinus after the occurrence of the closure of the semilunar valves an unfolding of the point of origin of the muscular fibres occurs, and thereby an unwinding of the spiral. Lastly, the flow of blood into the coronary arteries tends to straighten their curve, and so leads to an enlargement of the ventricular cavity (Brücke, Rolleston). The amount of blood expelled from the heart, and the method by which the estimation is arrived at, are familiar to everybody from the text-books of physiology. If we assume the quantity expelled to be four ounces, and we know the velocity attained by the blood to be about 0·5 metres per second, and the pressure in the aorta to be about 150 mm. Hg, we can, by multiplying these two together, estimate the amount of work performed by the heart. If there was no obstacle arising from the high pressure in the aorta the amount of force necessary for the expelled blood to attain a velocity of 0·5 metre would be very small—viz., from 0·64 to 1·28 gramme metres. To overcome, however, the high aortic pressure a force of from 102·0 to 204 gramme metres is needed. The total work of the heart is therefore a union of these two—viz., from 102·64 to 205·28 gramme metres. By far the largest part of the work of the heart is therefore expended in overcoming the obstacles in the vascular system. We do not sufficiently realise ourselves what a very small part of the heart's work is available for imparting to the blood its requisite velocity. It is but about 1-200th part of its whole work. The importance of treasuring this small margin of force, and the readiness with which the blood flow can be diminished by any increase in the vascular pressure, should be continually borne in mind. To sustain the equality of the circulation the right ventricle should expel at each systole the same quantity of blood as the left ventricle. Assuming the pressure in the pulmonary artery to be two-fifths of that in the aorta, the work expended by the right ventricle would be from 40·8 to 81·6 gramme metres. According to physiological experiments, while the *force* of contraction varies, the duration of ventricular systole is independent of arterial or venous blood pressure. My own table seems to show considerable discrepancies between lengths of duration of systole under exertion (when the blood pressure is high) and under the influence of the Turkish bath (when the pressure is low and the cardiogram and pulse tend to dicrotism), but the shortened systole may be due to nervous influences. In an experiment made by me some years ago both the subclavians and crurals and the abdominal aorta were simultaneously compressed without altering in any way the duration of systole. I have met with very short systole in pernicious anæmia and in fatty heart. In these, as in all other cases, it is probable that marked alterations in the duration of ventricular systole must be taken as evidence of want of nutrition of the heart wall or of the presence in the blood of toxic substances. A rise or fall of pressure in the aorta will, on the other hand, affect the *frequency* of the pulse, which sinks by rise of pressure and rises by fall of pressure through the influence of stimulation of the vagus centre or of the inhibitory nerves respectively.

In natural breathing, when the air vesicles are dilated by inspiration, the pressure on all sides of the lung capillaries is less, and the capillaries are not only lengthened but widened out in all directions; their capacity is, therefore, made greater and the blood pressure within them sinks, involving negative pressure in the large veins which open into the heart and facilitating onflow along the pulmonary arteries. Blood, therefore, streams into the lung. If, at the termination of expiration, the quantity of blood in the lungs is from one-fifteenth to one-eighteenth of the total quantity of blood in the body, at the termination of inspiration it will be from one-twelfth to one-thirteenth. It is obvious that, if the

[5] Die Untersuchung des Pulses, p. 94.
[6] Journal of Physiology, 1887, pp. 25–25a.
[7] Centralblatt für Physiologie, 1890.

lungs are distended by artificial inflation through the trachea, the intra-vesicular pressure will be positive from the first and will be very great when the distension is complete. The effect of this will be to hinder the onflow from the pulmonary arteries and to hasten the onflow along the veins, the total amount of blood in the lung in full artificial inflation being only about one-sixteenth of the total mass of blood. Now, in natural inspiration the pleural negative pressure is increased. This negative pressure acts in a contrary direction to and hinders the heart's systole, giving the right ventricle some slight trouble to empty itself. Diastole, on the other hand, is facilitated. In ordinary unforced inspiration these influences are, however, very slight, the main fact being that, in inspiration, the suction power brings such an increased flow of blood to the heart that the right ventricle is distended with blood previous to contraction, and therefore more completely fills the pulmonary artery by its systole. In expiration, on the other hand, the heart's systole is favoured and diastole is hindered. The flow of blood into the left heart is less, and there being less room in the lung capillaries the blood pressure in the pulmonary artery rises. An interesting observation was made by Lichtheim, who found that after ligaturing completely one pulmonary artery the same amount of blood continued to reach the left heart and the aortic pressure was not diminished. Even after a large part of the remaining pulmonary artery was rendered impervious by the creation of artificial emboli, not until about half the lung was rendered bloodless did the aortic pressure sink at all.[8] The pulmonary artery appears to be subject to very wide variations of distension. The actual work done, however, by the left ventricle is subject to much greater variations than that done by the right ventricle. Waller[9] by exciting the spinal cord obtained a very strong contraction of the peripheral vessels of the systemic circulation, whereby the aortic pressure was greatly increased and the left ventricle could not empty itself. By this means the pressure in the left auricle was raised from 25 mm. to 30 mm. Hg., and its walls ceased to contract. During all this time the right auricle and ventricle continued to contract normally. The distensible capacity of the pulmonary artery relieves it from any great variation in pressure. Tigerstedt remarks that this capacity and distensibility play the same rôle in the smaller circulation as the liver does in the larger. The blood collects in either, to the relief of the cardiac circulation, which would otherwise be constantly embarrassed.

We are now prepared to consider the effect of the variations of the pulmonary circulation in respiration on the pressure in the systemic arteries. In natural inspiration the first effect of the negative pressure in the intra-thoracic capillaries and veins is to diminish the flow out of the veins into the left auricle; the aortic pressure consequently falls. There is a second effect a moment later, for, the flow of blood into the distended pulmonary veins and capillaries being facilitated, the lung is gorged, blood pressure rises, the left auricle becomes distended by an increased flow of blood, and the aortic pressure rises. In natural expiration the capacity of the lung capillaries is diminished and pressure is exerted on the veins; the first effect is a rise of blood pressure in the veins, more blood enters the left auricle, and the aortic pressure consequently rises. The second effect occurs a moment later, less blood enters the contracted capillaries, the blood pressure in the veins falls, less blood enters the left auricle, and the aortic pressure falls. It follows that in prolonged laboured inspiration the aortic pressure rises, while it falls in prolonged expiration. I may here mention, though it is not a question of mechanics, the well-known fact, dependent on nervous influences, that the pulse frequency is increased in inspiration and diminished during expiration. The blood supplied to the heart and the corresponding extent of excursion in the heart's movements also vary in the same way. The respiratory movements of course do not affect the intra-thoracic pressure only, but also the abdominal. The abdominal pressure rises, while the intra-thoracic pressure falls; the effect of this is to hasten the blood onwards towards the heart and to diminish the return of blood from the legs to the abdomen. This may contribute to the rise in inspiration of the aortic pressure. In slow, deep respiration the maximum aortic pressure is reached at the commencement of expiration, the minimum at the beginning of inspiration. It is clear that to maintain an equable circulation the heart must be supplied with the same quantity of blood as is driven from it at each systole. It is customary to imagine that the difficulty of return to the thorax of a column of blood extending from the foot to the heart is very great, and that it is only overcome by the suction power of inspiration, and of cardiac diastole, combined with the effect of lateral pressure of the acting muscles and of the pulsating arteries against the blood column in the veins which lie in contact with them. That the difficulty is not so great as is generally imagined will be apparent from the consideration that the mechanical obstruction to the return of fluid in the ascending limb of an arc is neutralised by the increased facility offered for the flow of blood in the descending limb. As Tigerstedt points out, when the thorax is opened so as to exclude any inspiratory suction power the blood returns to the heart without the least difficulty; the return is, indeed, favoured by the greater sectional area existing in the larger veins compared with that in the arteries.

Before entering upon the study of the pulse wave in the arteries it is well to consider what obstacle the capillaries offer to the wave of impulse sent through the blood. Is the wave lost before it reaches the capillaries? If not, what is the nature of the obstacle which they offer to the impacting wave? Part of this question will be considered when we discuss the movements of waves in elastic tubes, but some facts relating to the capillaries should be recapitulated.

Owing to our visual memory of the capillary network as seen through the microscope, we are, I think, inclined to imagine the length of the capillaries—that is to say, the distance between the finest arterioles and the extreme venous radicles—to be much longer than is the case. The distance has been estimated at about 0·2 mm. Through this short distance the red corpuscles move with a velocity of a millimetre in one second or in half a second. The red corpuscles, because of their large size and specific gravity, take the axis of the stream owing to purely mechanical reasons. Owing to mechanical reasons also, the corpuscles being flat and the pressure behind having a tendency to be equalised over their surface, they travel flat to the stream, with the shortest diameter parallel to the direction of blood flow. The white corpuscles, being rounder and smaller and lighter, mechanically take the wall, and, getting into the peripheral part of the stream, since the rapidity of flow is greatest on that side of them which is nearest to the axis of the stream, they are rolled along the wall of the vessel. Now, since the red corpuscles take the axis of the stream, and the mean velocity is half that of the axial stream, the mean velocity of blood flow will be about half that of the red corpuscles. We know that the velocity of blood flow in the aorta is from 0·3 to 0·5 up to 1·0 metre per second, while in the same space of time the blood in the capillaries traverses only about as many millimetres. This is owing partly to the much larger section of the whole capillary system, compared with that of the aorta, and partly to the loss of velocity through friction, which, indeed, is not a "loss" in the ordinary sense, since it becomes disponible as heat.

It is now known that the capillary walls are contractile, and that the diameter of the capillaries varies independently of the arterial blood pressure. When they thus vary it is probably in response to the chemical constitution of the blood, which is altered in correspondence with the varying conditions of tissue change in the part. Irritation of the nerves which supply the capillaries has not yet been directly shown to influence their diameter, though variations in their diameter may assist the arterioles in regulating the blood supply to an organ. The capacity of the arterioles and capillaries considered as a whole is so great that, were they all filled with blood to the fullest capacity, the quantity of blood in the body would not be sufficient to maintain the normal aortic pressure. The pressure and capacity are constantly varying in different parts of the arterial and capillary circulation, accordingly as each organ is called into greater or subsides into less activity. By this arrangement the aortic pressure remains the same and contributes to the increased flow of blood to the part excited to activity. These facts explain in some measure the beneficial action of some of the drugs called "derivatives," such as ipecacuanha, which, by dilating the vessels generally, equalise the circulation and relieve some part which is receiving too great a supply of blood. The actual blood pressure within the capillaries has been estimated by observing what superficial pressure is necessary to deprive some part of a mucous membrane lying against a hard basis of its colour. Such a situation is found

[8] Die Störungen des Lungenkreislaufs. Berlin, 1876.
[9] Archiv für Anatomie und Physiologie, 1888.

n the gum of the rabbit, where v. Kries found that the capillary pressure was about 33 mm. Hg, or about one-third to two-sevenths of the aortic pressure.

Owing to the independence in contractility shown by the capillaries and to the large size of the individual red blood corpuscles compared with their lumen, together with the fact that we are not here dealing with a mere channel of conveyance, but with a part actively engaged in tissue changes, to which the variations in the conditions of the arteries are merely subservient and contributory, and also considering the fact that pulsation is not felt in the veins on the other side of the capillary network, we may be sure that if an impulse wave arising in the aorta is of such a length as to reach this point it will meet with such an obstacle as to be possibly reflected back again along the channel by which it came. Still carefully distinguishing between velocity of blood-flow and velocity of transmission of pulse wave, which latter will be considered later, we find, by the use of Ludwig's "Stromuhr," the mean velocity of the blood in the arteries in one second of time to be about 0·3 to 0·5 metre per second. The experiments made by Hering and Vierordt to estimate the time occupied by the blood in traversing a complete circuit are well known. A solution of ferrocyanide is injected into a jugular vein of one side and is detected after the sought-for lapse of time in the other jugular or in a crural vein. Hering has estimated the shortest time in which any portion of the blood completes a circuit to be 26·2". This must not be taken as the average time of completing a circuit. As already said, the maximal velocity is attained only in the axis of a tube, and the minimal near the parietes, the mean velocity of blood flow being but the half of the maximal, or axial, velocity—that is to say, fifty or sixty seconds per circuit.

Vierordt[10] estimates that the mean duration of a circuit varies with different mammals and is shorter in small than in large mammals. He finds that the number of heart beats which is necessary in every animal to drive the blood through the whole circuit is independent of its size and is equal in all animals, being about 28 to 29 heart beats. Tigerstedt, however, finds that in the rabbit the number of heart beats necessary is 120, and nearly all his measurements differ so widely from those of Vierordt that the subject must be considered as being still under discussion.

The blood pressure alone gives no indication of the velocity of the blood, which may be slow or quick with a high pressure according as the obstacle is greater or less. This is excellently and usefully shown by Dr. Waller's table:[11]—

	Heart Force.	Arterioles' Resistance.	Blood Pressure.	Blood Flow.
1.	Constant	Increased	+	−
2.	Constant	Diminished	−	+
3.	Increased	Constant	+	+
4.	Diminished	Constant	−	−
5.	Increased	Diminished	+	+
6.	Diminished	Increased	−	−
7.	Increased	Increased	+	+
8.	Diminished	Diminished	−	+

Inside rigid tubes of varying diameter, into one end of which fluid is injected, the velocity of the fluid is equally great in every section of the tube, but the side pressure grows less the further it is taken from the point of injection. The tension of the fluid in any part of a horizontal rigid tube is the side pressure, which can be measured by leading off perpendicular tubes from various points of its length. The larger the bore of the main tube the less is the obstruction, and therefore the lower the height of the fluid in the perpendiculars. The height of the fluid in the perpendiculars declines in relation to the distance from the initial pressure, owing to the increased friction of each added length of tube. The height of the fluid in the perpendicular tubes is a measurement of the side pressure in the main tube at that point and, of course, marks the excess of the inner pressure over the atmospheric pressure. If the sectional diameter of the tube varies, fluid still flows out at the open end in a constant stream, therefore in every unit of time the same quantity of fluid must flow onward in every section of the tube; the velocity in the different parts of the tube will, in consequence, be inversely as their sectional area. In this case, besides the loss of side pressure due to friction of the kind above mentioned, a further loss occurs from the friction arising at the junction of a wider with a narrower portion of the tube; if, on the other hand, a wider tube follows a narrower one the pressure may either remain unchanged from what it was in the narrower portion or actually rise. If branched rigid tubes lead off from a main trunk there is a greater facility of flow through them than through a single tube. If their united section is larger than that of the main stem the quantity of fluid passing in each unit of time through the thus created larger section remains the same, but the velocity of flow is less, being inversely proportional to the larger sectional area; the relation between fluid and surface is, however, increased, owing to the smaller diameter of each of the main individual branches into which the stem divides, and therefore the obstacle interposed by friction is also greater. The increased friction is hence opposed to the increased facility of flow which would otherwise be the consequence of the larger sectional area. When the divided branches are gathered up again into one stem there are less friction, a smaller sectional area, and a greater velocity. If a simple continous stream flows through a system of elastic tubes the same considerations hold good and apply to the flow in the capillaries and veins. When fluid is driven into elastic tubes by intermittent rhythmical action, as it is into the arteries, special considerations arise. The fluid driven into the tube has not to displace the whole mass of fluid beyond it at one time. The blood driven into the aorta from the heart meets, it is true, with the inertia of the mass of fluid against which it impinges, with the friction in the many arterial branches, and with the obstruction of the capillaries, but the root of the aorta is distended by the increase of blood volume. This distension exerts a pressure on the enclosed fluid, which continues when the heart has ceased to contract, and consequently the blood continues to stream onward until the root of the aorta has returned to its former tension. The force of the heart is, in fact, transmuted into terms of elastic tension, which acts during the period of the heart's rest; the expenditure of work is, therefore, much less than if the whole mass of blood had to be moved forward *en masse*, as would be the case if the tubes were rigid.

As has been shown by Roy,[12] the arterial walls become more rigid as the pressure is raised above the general mean pressure of the artery of the animal from which it is taken. The rigidity begins in excess of a point up to which the distensibility of the artery increases with each increment of pressure, the maximum cubic extensibility of an artery lying about its ordinary mean interior pressure In a distended artery, in which the blood pressure is already in excess, the advent of an additional volume of blood causes the interior pressure to rise greatly in excess of the rise which would occur in the same artery if the blood pressure were lower and the elasticity greater. With higher arterial pressure, when the arterial walls are distended to the point of rigidity, the less can the artery be widened by the same addition of blood. I have already mentioned his remarks on the occurrence of dilatation of the heart from such high aortic pressures owing to incomplete emptying of the ventricle.

That many difficulties lie in the way of measuring, with complete accuracy, the blood pressure in the sick is not a reason why any approximate estimation of the pressure should be completely neglected, as is now almost universally done. A useful sphygmomanometer can be made for a few shillings, and its application would in most cases be accurate enough if we could always feel, at the wrist or elsewhere, an easily accessible artery lying on a flat and rigid bed. It is better to employ a slight extension of the wrist, as, owing to the increased tension put upon the fascia, the amount of yielding beneath will then be reduced to a minimum. I have been using a sphygmomanometer made by myself on a simple plan suggested to me by Dr. Waller. A U-shaped piece of glass tubing, one limb of which is bent at a right angle, is connected by means of a perforated indiarubber cork with an ordinary indiarubber finger-stall. This is fixed on an upright frame scaled in millimetres. When the finger-stall is applied over an artery, pressure is exerted until the distal pulse beyond it is no longer perceptible. The ulnar artery should always be compressed in order to avoid the recurrent pulsation through the palmar arch, to which attention was first called by Dr. Waller, and which has since been described by Dr. Dickinson and by Dr. Douglas Powell. Since I have used the sphygmomanometer I have met with the phenomenon of recurrent pulse so frequently that I have ceased to consider it as being of much clinical significance, though Dr. Douglas Powell has described it specially in connexion with the pulse of high tension.

[10] Die Erscheinungen und Gesetze der Stromgeschwindigkeiten des Blutes, p. 56. Frankfort-on-Maine, 1888.

[11] Handbook of Physiology, p. 60

[12] Journal of Physiology, vol. iii.

By direct measurement in mammals we know that the mean blood pressure is remarkably independent of the kind or size of the animal. By analogy we may assume that the aortic pressure in man varies between 100 and 200 mm. Hg, the mean pressure being about 150 mm. Hg.

In using the sphygmomanometer which I have just described we must allow for certain errors. According to von Basch,[13] in order to occlude an artery through the overlying skin, it is necessary to apply a pressure of from 6 to 8 mm. Hg higher than when the artery is exposed. Again, a certain amount of pressure is necessary to occlude even an empty exposed artery. V. Basch estimates this to be about 1 mm. Hg for a normal and about 5 mm. Hg for a sclerosed artery. We have therefore, to allow for :—

	Millimetres of Mercury.	
	Minimum.	Maximum.
1. Overlying skin	6	8
2. Unfavourable position of artery	20	60
3. Compressibility of arterial wall	1	5
4. Difficulty in estimating disappearance of pulse	5	5
	32	78

Tigerstedt concludes that the sphygmomanometer is suitable for estimations of the blood pressure on one and the self-same person within certain limits of time and thinks it has proved to be of great use in clinical medicine. I certainly think that when employed with due care it gives a much more accurate knowledge of the blood pressure in the radial than can be gained by the sense of touch, and I have used it as an indication for treatment with the best results. It would be interesting to ascertain how many physicians ever use one in their practice.

In clinically considering a low blood pressure we have to remember that the arterial blood pressure sinks—(1) when the quantity of blood expelled from the heart in a unit of time is less ; (2) when the energy of the heart declines ; and (3) when the vascular obstacles are less ; and that it rises when either of these is in excess.

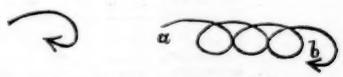
If the venous supply of blood to the heart is sufficiently voluminous and rapid, and the heart is acting with energy, a rise of arterial pressure may ensue from increased frequency of heart beats. The reverse is also true. It is a suggestive fact that the blood pressure in the aorta is not raised so high when the abdominal aorta is compressed as it is when the splanchnic nerves are strongly stimulated. In the first case a quantity of blood remains in the arterial system on the peripheral side of the ligature ; in the latter this blood is by the contraction of the arteries driven out into the venous system, and consequently a larger mass of blood returns to the heart in order to be driven into the aorta. It is only after the aortic pressure becomes very high that the heart begins to expel a smaller quantity of blood at each systole.

Both contracting auricles discharge their contents into the ventricle at about the same pressure (20 mm. Hg) ; we may assume, then, that this will represent the pressure in the ventricle just before its contraction. The pressure then rises in the ventricle until the semilunar valves are open, and continues to rise, after they are open, to a maximum, prior to the relaxation of the heart muscle. The higher the aortic pressure the greater is the work thrown upon the heart in raising the intra-ventricular pressure. It must be repeated that this extra work is not shown by an increase in the duration of the ventricular systole ; none of the many measurements I have made lend any support to such a view. It is said that the slope of the initial rise in the cardiac tracing is lower, but this may not always be the case, for the heart's increased energy is shown by the vigour of its contraction, which succeeds in doing a larger amount of work in the same period of time. Any diminution of work done is therefore to be expressed, not in terms of the time employed in ventricular contraction, but in terms of the reduced amount of blood expelled into the aorta, which, otherwise expressed, means that a larger amount of residual blood remains in the ventricle. If the supply of blood to the heart is kept up, the volume of expelled blood is, between from 58 to 147 mm. Hg., independent of the aortic pressure. Indeed Roy and Adami,[14] as also Johannsson and Tigerstedt, have shown that within certain limits the heart may expel a greater quantity of blood against an increased aortic pressure than against a lower pressure. The rule is, as I have said, that the quantity of blood expelled at each systole is less when the aortic pressure becomes very high. This conclusion is borne out in another way. Hürthle[15] found that the variations in aortic pressure during a whole heart period were as a rule less with higher than with low pressures. Now we know that the extensibility of the aorta grows less with high pressures—that is to say, it becomes more like a rigid tube—and that consequently additions of blood from the heart must cause a much greater increase of pressure when the pressure is already high than when it is low. Since, however, it is shown by Hürthle that the aortic pressure varies within small limits only, it is to be concluded that when the aortic pressure is very high less blood is expelled into it at each systole than is the case with a low aortic pressure.

Alterations in the arterial pressure by variations in the quantity of the whole mass of blood through blood-letting or through transfusion are very transient. After blood-letting, fluid is quickly absorbed from the interstitial tissues, while the secretions from the kidneys, salivary glands, &c., are diminished. Transfusion, on the other hand, if excessive, may lead to rapid heart failure ; if moderate, blood will collect in the distended liver and abdominal veins, while the urinary secretion is increased. Alterations in arterial blood pressure are, in short, much more dependent on the dilatation or contraction of the arterioles, arising from vaso-motor or other influences, than from these causes.

Before entering upon the study of the graphic representation of the pulse wave it is of advantage to consider shortly the nature of the wave movements of incompressible fluids when these are set up (1) with free surface, and (2) in elastic tubes. The general fact that the particles of the fluid set in motion describe an elliptical path, but are not themselves propagated onward with the travelling wave, is sufficiently familiar to need no further mention. The terms "positive wave" and "negative wave" require, however, some notice. Separating clearly the idea of an onward moving mass of fluid from the onward movements of a wave set up in it, we find that the particles of fluid participating in the wave describe, successively, elliptical paths, each of which may be divided into two kinds—viz., (1) one which lies above the ordinary level of the fluid, and (2) the other, which lies below the ordinary level of the fluid. The first is termed the "positive wave," the second the "negative wave." In the positive wave the particles of fluid are moving in the direction in which the wave is propagated, in the negative wave they are moving in the reverse direction.

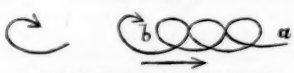
FIG. 3.



Positive wave. After E. H. Weber.

Owing to friction, the wave will be less in extent the further it is from the commencement of the tube, and will be so far deformed that the rise and fall will be less steep. Now, if an elastic tube is filled with water a wave may be set up in it either by suddenly injecting an addition of water at one end or by pinching the tube, in which case a positive wave will be caused, as in Fig. 3, or a wave may be caused by suddenly removing any compression from the other end. In the latter case, although the mass of fluid streams out of the tube in the same direction as it does in the first instance, a wave is propagated in the reverse direction towards the central end. This is a negative wave and can be better understood by reference to another figure. If a stream is set

FIG. 4.



Negative wave. After E. H. Weber.

flowing through an elastic tube open at its peripheral end, and the stream is then suddenly interrupted, a negative wave is set up which is carried onward to the periphery. If, again, water is thrown rhythmically into the tube from the central end, at every impulse a positive wave is

[13] Berliner Klinische Wochenschrift, 1887.

[14] Brit. Med. Jour., 1888, p. 1321 et seq.; and Philosophical Transactions, 1892.

[15] Archiv für die Gesammte Physiologie, 1888.

propagated in the direction of the periphery, and at every cessation a negative wave is propagated, likewise in the direction of the periphery. Both these are called "primary waves," though the first is accompanied by a rise and the second by a fall of pressure. If the elastic tube is not long enough for the wave to be wholly extinguished by friction, and the peripheral end is closed, other waves, in a reverse direction, will be reflected from the closed end. For the sake of avoiding all confusion these reflected waves are not called "negative waves"—indeed, they are often "positive" in character—but "centripetal waves." A centripetal wave, in its turn, may reach the central end and be reflected from the central end again towards the periphery in the same direction as the primary wave. These are called "secondary centrifugal waves." If a reflected wave is accompanied by a rise of pressure it is a positive wave, if by a fall it is a negative wave.

From the considerations already mentioned as to the state of the capillary circulation, it is conceivable that such reflected waves may readily occur in the arterial system from the impact of a primary wave. Possible reflection may also be imagined from the points of division of the artery. It is likewise conceivable that a wave reflected back from the periphery along one artery may not only course to the heart, but may take a centrifugal direction along some other artery at a convenient point of junction. So many possibilities of interference are there, owing to the many branches of arterial division and the varying states of the circulation in the different organs of the body supplied by them, that it is difficult to imagine any but the most clearly dominating form of wave surviving the confusion. One can assume that the primary and main secondary waves are propagated without much change of character through all the arterial branches. The pressure movements caused by these waves are accurately recorded by means of Marey's well-known sphygmograph, and although it is a form of sphygmograph not much used at the present day it furnishes a typical pulse curve, or sphygmogram, which will serve as a basis for description. It represents the course of pressure in the artery, but not the amount of pressure. This is perhaps only to be obtained by means of manometrical observations in the physiological laboratory. Even should the whole series of curves under observation show a rise to a higher level, this is no evidence of a rise of intra-arterial pressure, since simple turgor of the skin may raise the lever. The curve, however, shows the course of pressure in the artery and presents peculiarities as it is taken from different arteries, but it has certain definite points peculiar to all pulse curves. First, there is a steep rise, corresponding to a primary positive wave, from the streaming of blood into the aorta. The slowness with which the rise takes place is some measure of the obstruction to the inflow of blood. After the summit of the primary wave is reached there is a drop to the dicrotic notch, following which there is a rise corresponding to the dicrotic wave. Between the summit of the first wave and the dicrotic notch there is an upheaval, which is usually on the falling line between the first summit and the dicrotic notch; this upheaval may, however, in some cases reach a higher level than the initial rise. In this case the curve is called "anacrotic," in the first place it is called "katacrotic." According to Roy and Adami, the upheaval corresponds to the continuance of outflow from the ventricle, and it is by them termed the "outflow remainder wave" and by others the "tidal wave." The dicrotic notch is caused by a fall of pressure following on the first distension of the vessel, and the subsequent dicrotic upheaval is caused by a centrifugal positive wave, according to some, arising from the recoil of blood at the root of the aorta against the closed semilunar valves, but according to v. Kries and v. Frey, and others also, by a positive centrifugal, but secondary wave, arising from a centripetal wave reflected from the periphery, which is again reflected from the semilunar valves. According to some writers (Grashey and Hoorweg) the dicrotic wave is propagated onwards in all arteries with the same velocity as the primary wave. Hürthle finds also that it occurs at almost the same period after the beginning of the primary wave; on the other hand, Landois, v. Kries, and Edgren find that the dicrotic wave occurs somewhat later in the lower extremity. Whether the dicrotic wave owes its origin to central causes alone—that is to say, to a recoil of blood at the root of the aorta impacting against and reflected from the semilunar valves—or whether, on the other hand, it arises from a peripheral wave reflected back, and a second time reflected, has been much discussed. Bernstein and Hoorweg deny altogether that it is possible for a wave reflection to occur from the periphery with sufficient intensity to cause the dicrotic wave, since, owing to interference, only a small portion of the reflected waves can reach the heart; on the other hand, v. Frey, Krehl, and v. Kries have proved that a reflection from the periphery does, in fact, take place. If in a lately killed animal the heart and lungs are removed and manometers are fixed in the subclavian and cœliac arteries, a wave driven into the arteries and suddenly broken shows by the manometer that reflection does occur; these reflex waves can therefore reach the semilunar valve and be reflected from them again as positive waves. We must at least grant the possibility that if the dicrotic upheaval is caused by a wave of recoil at the root of the aorta a reflected wave from the periphery may accentuate and strengthen it. V. Frey and v. Kries, however, have opposed altogether the theory that the dicrotic wave can be of central origin; while Grashey, Edgren, and Hoorweg, and also Hürthle, incline to the central origin of the wave and deny that it is conditioned by the central reflection of a centripetal wave from the periphery. To prove this point Hoorweg devised an ingenious experiment. Through an elastic tube provided with valves he sent the contents of a suddenly compressed ball, which was as suddenly relaxed. The sudden closure of the valves which followed also closed an electric circuit, and a spark was obtained from a Ruhmkorff's coil which bored a sharp hole from the point of the writing lever through the smoked paper of the recording cylinder. This perforation corresponded with the point of dicrotic upheaval. When the valves were taken away no upheaval occurred. Hürthle has made like and confirmatory experiments. With regard to these experiments and the deductions therefrom v. Kries objects that they presuppose a recoil at the commencement of the tubes and that it is a question whether a recoil of sufficient amplitude to cause the dicrotic wave can in fact arise at the root of the aorta. If we assume that the recoil occupies a very small fraction of time it would give rise to nearly nominal pressure movements, unless the quantity of blood thrown back against the valves were very great. In the latter case the rise of the dicrotic wave would be very sharp and steep, whereas the dicrotic wave is extended and broad-topped. Moreover, in the typical dicrotic pulses of nitrite of amyl and of fever we should have to assume a long period of time occupied in recoil, with an attainment of great velocity of secondary wave, equal, as I have said, to the velocity of the direct primary wave, which can scarcely be the case. Tigerstedt points out that there is little true likeness between schematic experiments and the actual behaviour of the blood in relation to the aortic valve. In actual life, when the heart muscle relaxes, the muscular bundles which support the semilunar valves relax together with it; this relaxation permits the valves to be thrust back into the ventricle to a certain extent, and, owing to the great aortic pressure, more room is thus given, and, the semilunar valves being suddenly rendered tense, a new centrifugal positive wave ensues, which is shown as the dicrotic upheaval. Tigerstedt thinks the following view to be the most in accordance with known facts. Through the sudden influx of blood from the heart into the aorta a first positive wave arises, which corresponds to the first upheaval in the pulse curve. When the blood ceases to flow out of the heart a negative wave is propagated from the root of the aorta in a centrifugal direction through the arterial system. Another negative wave follows immediately on this, when the heart muscle relaxes, and the semilunar valves are no longer supported by their underlying muscular bundles and by the blood remaining in the ventricle. These two negative waves are commingled and are propagated in a centrifugal direction through the arterial system. At the same time with the second centrifugal negative wave a portion of the aortic blood streams backwards towards the heart, strikes against the closed semilunar valves, and sets up a second centrifugal positive wave which occasions the dicrotic upheaval. The slight upheaval on the falling limb of the curve of the cardiogram and that of the curve also of intra-cardial pressure are explained in the same way. The sudden shock of blood against the semilunar valves drives the valves to a certain extent into the heart and raises the intra-ventricular pressure, and the whole heart suffers a certain change of position. Tigerstedt believes in the possibility, under favourable circumstances, of a secondary upheaval caused by wave reflection from the periphery. If the reflection occurs as a positive wave it will add to the height of the dicrotic wave. Whether, as a rule, the reflected wave occurs without change of sign is difficult to say.

The matter is so interesting, and is so important for the

understanding of the sphygmogram, that I must enter at a little more length into the views of v. Frey and Hürthle. V. Frey as well as v. Kries commence the discussion concerning the form of the original primary wave with the changes in velocity at the root of the aorta. Owing to friction, the changes of pressure observable in the pulse tracing do not correspond to the velocity; for instance, when the pressure falls the velocity continues. It is desirable to separate the wave into a systolic and a diastolic portion. In the systolic portion the change of pressure is very sudden; it is this portion of the wave which, according to v. Frey, gives rise to reflection from the periphery, and it is this portion, therefore, which has now to be considered. The systolic wave spreads into the arterial system with a velocity of several metres per second; the beginning of the rise of pressure, therefore, reaches the place of reflection before the heart is emptied of blood. If we assume a mean wave velocity of 28 feet per second, and the duration of systole to the point of closure of the semilunar valves to be 0·1", 0·2", or 0·3", the head of the wave will have reached a distance respectively of 34, 68, or 102 inches from the aortic valve at their moment of closure. These numbers represent the length of wave for the corresponding times of systole. "One must get rid of the idea that the pulse wave is a short wave which is propagated from part to part along the artery, and clearly understand that the pulse wave is of such a length that, under normal circumstances, one whole pulse wave has not room to extend from the root of the aorta to the artery of the great toe." The first part, or head, of the primary wave, therefore, reaches the periphery during the cardiac systole before the remainder of the wave, or tail, has left the root of the aorta, and there is ample time for the wave to be reflected from the periphery and to interfere with the oncoming primary wave. The interference wave (which is a centripetal wave of the first order) will, the nearer the sphygmographic tracing is taken towards the periphery, unite itself to the primary pressure rise, while diminishing the velocity. The nearer the tracing is taken towards the centre the further will the interference wave be from uniting itself with the primary rise, whose summit will, through division into its two component parts, become anacrotic or katacrotic, as the case may be. This first centripetal, or interference, wave reaches the heart and is reflected from the now closed aortic valve, becoming a so-called centrifugal wave of the second order. It is this which, according to v. Frey, when united to a second centripetal wave set up by it, is the cause in the peripheral arteries of the dicrotic upheaval. He thinks it likely that, in arteries near the centre, the dicrotic upheaval belongs to the type of secondary interference waves.

We have, then, the dicrotic wave, which is an expression of a positive centrifugal wave. This may originate either at the root of the aorta, owing to a recoil against the valves following on the first expansion of the aorta, or as a wave reflected from the periphery, and again reflected from the semilunar valves in a centrifugal direction, forming, so to speak, the tail of the pulse tracing, of which the first primary wave forms the head. As reflex waves we have also to recognise both the first centripetal wave, which is reflected from the periphery, and the waves which may be assumed to be reflected from the periphery at first in a centripetal direction, but which subsequently take a centrifugal direction along some branch or branches without journeying to the heart at all. It is clear that the first of these waves must cause a diminution of velocity, though possibly raising the pressure within the vessel. V. Kries places this wave as the first slight upheaval on the falling limb of the radial curve and says that pressure and velocity there show the most marked difference. The second slight upheaval on the falling limb before the dicrotic notch he considers to be a centrifugal wave, but one which, in its origin centripetal, has been reflected along some branch of junction. These conditions, if present, must necessarily give rise to considerable variations in the pulse tracings from different arteries. Tigerstedt points out that in the femoral tracing the dicrotic upheaval is much more spread out than in the radial tracing, and he thinks that the cause of this is not to be sought in the varying distance of the two points from the root of the aorta, since the distance of the two points from the root of the aorta is much the same in both cases, but that reflected waves from the abdominal vessels must considerably modify the femoral tracing. In order to make this clear I take from Tigerstedt, after v. Kries, a diagram of the radial curve with the arm pendant and raised. V. Kries, who has studied these differences by means of the tachogram and plethysmogram, explains them thus. The first positive reflexion from periphery to valves is proportionately less when the arm is pendant than when it is raised. In the pendant arm the vessels are distended with the column of blood in a greater degree than when the arm is raised; the positive reflexion of the centripetal wave from the valves in a centrifugal direction is therefore more marked in the raised arm and appears in the anacrotic summit. The amount of the heart's activity cannot be gauged by the amplitude of the pulse curve, as this amplitude is but the expression of wide variations in the internal pressure. The tone of the arterial wall and the amount of peripheral obstruction do to some extent influence the pulse tracing. A pulse, of course, shows more "dicrotism" the higher the dicrotic wave and the lower the preceding fall of pressure, being to some extent the expression of pressure varying largely at the instant, and usually goes therefore with low blood pressure, though in fever and in other conditions, where the tone of the vessel walls is diminished, dicrotism may arise even with an increase of blood-pressure, as has been specially noted by Roy and Adami [16]

As I have said, estimation of the mean velocity of blood has been made by Ludwig's "Stromuhr," which apparatus it is not my purpose to describe. The velocity of flow was shown to be about 0·3 to 0·5 metre per second. Of greater interest in connexion with sphygmography would be any successful effort to measure the velocity of the various parts of the pulse wave which are delineated in the sphygmogram. Vierordt attempted to do this in 1858 by applying the principle of inserting a pendulum into the blood stream and estimating the variations of velocity by the varying deviations of the pendulum. Chauveau and Lortet employed the same device, conveying, however, the movements of the pendulum by transmission to a Marey's tambour. By his "hæmodromograph" Chauveau made the following measurements on the carotid of a horse: Velocity during systole, 520 m.m. per second; velocity during diastole, 150 m.m. per second; and velocity of dicrotic wave, 220 m.m. per second. Of great interest, partly on account of their extreme ingenuity, are the methods employed by Fick and others. By inserting the forearm in a Mosso's "plethysmograph" variations in the volume of the arm during each heart-beat can be registered. The curve obtained has a general likeness to a pressure curve. That it represents a different series of events is apparent from the following considerations. The outflow of the blood from the forearm through the veins is constant and uniform, its quantity or rapidity being uninfluenced during the time occupied by a heart-beat, owing to the interposition of the capillaries. Though the mere increase in the volume of the forearm is due to increased quantity of blood injected into it through the arteries, the velocity of blood in the limb may diminish as the size of the arm increases. Any variations in the steepness of the volume curve can, however, only be due to increased or diminished velocity of blood entering the limb in a given time; for the blood only flows out of the limb at one steady and uniform rate. From the changes in direction of the volume curve, therefore—or, in other words, from the different angles of inclination of the various parts of a volume curve one to another in juxtaposition—can be deduced the velocity of the various parts of a pressure tracing taken synchronously from the pulse by means of a sphygmograph. The pulse tracing, it must be reiterated here, obtained by applying pressure to the side of an artery merely gives indications of the alterations of pressure within it, it being conceivable that a return wave from the periphery along the artery in the direction of the heart may increase the pressure within the artery while diminishing the velocity. Any external pressure applied to the arteries of the forearm will consequently slightly vitiate the volume curve obtained by Mosso's apparatus, and it is necessary to eliminate this source of error, for the air within Mosso's cylinder exerts a pressure on the arteries of the forearm when the volume of the contained limb is increased, the elastic membranes which close the cylinder contributing to convert the apparatus somewhat into a pressure instrument. The whole difficulty has been most ingeniously avoided by v. Kries, who has almost succeeded in obtaining a pure direct velocity curve. In his "gas tachograph" he has connected the interior of Mosso's cylinder with the external air by leading a tube from it into a wide gas jet. Any steady

[16] Practitioner, 1888, p. 423, et seq.

increase in the volume of the forearm would lead to no movement in the flame of the jet, but alteration in the steadiness would lead to unsteadiness in the flame—in other words, the flame would rise in correspondence with an increase of velocity and sink with a diminution of the velocity. By photographing the movements of the flame he therefore claims to have obtained a direct tracing of the velocity of blood flow during the various parts of the pulse wave. For the criticism of this method I must refer to an article by Hoorweg,[17] who thinks that there is much delay in transmission and in response, with difficulties owing to interference with the approach of gas to the flame, so as to destroy the value of the tracing for purposes of exact measurement. If disappointing in their result, the conception of these experiments by v. Kries cannot but excite our admiration.

A CASE OF TUBAL GESTATION.

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A MARRIED LADY aged twenty-eight was seen by me in consultation on April 1st, 1893. Her history was as follows. She had been married twice—the second time a year and eight months ago. She had had one confinement seven or eight years ago and was said to have had three miscarriages since her second marriage. She came on "poorly" on Jan. 5th, 1893, instead of the 13th, which would have been the proper time. Her husband left her on Jan. 28th and was away till March 25th. She menstruated again on Feb. 9th, and, except for an interval of two days, she had a red vaginal discharge from that time till I saw her in April. Pain in the right iliac region had been a symptom from about the beginning of March. On April 1st, at 3 A.M., she was seized with severe pain in the stomach and back and felt faint and sick. I saw her about 5 P.M. the same day; she was in bed, but she had rallied a good deal since the early morning and was able to tell me most of the history that has been given above. The breasts had an appearance of activity, and contained milk; she was sure they were larger than they had been. An indistinct fulness could be felt in the hypogastrium, but tenderness interfered a good deal both with this and with the subsequent vaginal examination. The vagina and cervix had a distinct blue tinge. The uterus was considerably enlarged, and there was a soft swelling, with an indefinite outline, to the right of the uterus. It seemed to be very probable that the case was one of extra-uterine pregnancy, although it was possible to explain the various features of the case by supposing it to be one of threatened miscarriage or molar pregnancy; on that supposition the swelling to the right would be an accidental complication such as a small ovarian tumour or dilated Fallopian tube. Soon afterwards the patient was removed to Fitzroy House. I was again sent for to see her on April 17th about 6 P.M., as she had been once more seized with great pain in the right iliac region and faintness. The red discharge had persisted more or less. I advised that she should be examined under chloroform and that the cervix should be dilated, so that the condition of the interior of the uterus might be ascertained. This was accordingly done on the next day. I found the uterus to be uniformly enlarged, and its cavity empty. The sound passed four inches. The interior of the uterus was soft and pulpy; there was nothing to account for its enlargement except the view that the swelling felt to the right of it was an extra-uterine fœtation. At this time the patient was extremely anæmic; the abdomen was moderately distended and tender. I advised abdominal section, and it was arranged to perform it on April 22nd. Between the 18th and the 22nd the distension of the abdomen increased somewhat, but it was never extreme; there was great pain, especially marked in the right iliac region. The pulse was 104, and there was no rise of temperature. Morphia and hot fomentations were used in order to relieve the pain.

The operation was undertaken on April 22nd at 10.30 A.M. On opening the abdomen the peritoneal cavity was found to contain a large quantity of blood and clot. Some of the clot was more recent than other portions. The fluid blood was dark and of a somewhat chocolate colour. A fœtus of about three months' development was found to be lying among the intestines; the umbilical cord was ruptured about two inches from the fœtus, but I am not sure whether this may not have been accidentally done when exploring the condition of things with the hand in the first instances The right Fallopian tube was found to have been the seat of the pregnancy. It had ruptured towards the outer part and anteriorly; there was a second rupture more posteriorly, out of which a shaggy piece of placenta, the size of half a walnut, projected into the peritoneal cavity. (Fig. 1.) There was no evidence whatever of peritonitis, there being no lymph, and the surface of the peritoneum everywhere was smooth and shining. The ruptured sac was held up, and the broad ligament below it was transfixed and tied. Another ligature was then tied round the whole pedicle, and the sac was cut away. The peritoneum was then washed out very thoroughly with hot iodine water containing one drachm of the tincture to each quart of water. About twelve jugfuls of this were used. After about five jugfuls had been used, and the lower part of the peritoneum seemed to be quite clean, a large quantity of dark blood came from the region of the liver, having been shut off from the effect of the previous washing by the left hand holding back the intestines. Finally, the water used for washing came back quite clean, and the wound was completely closed in the usual way.

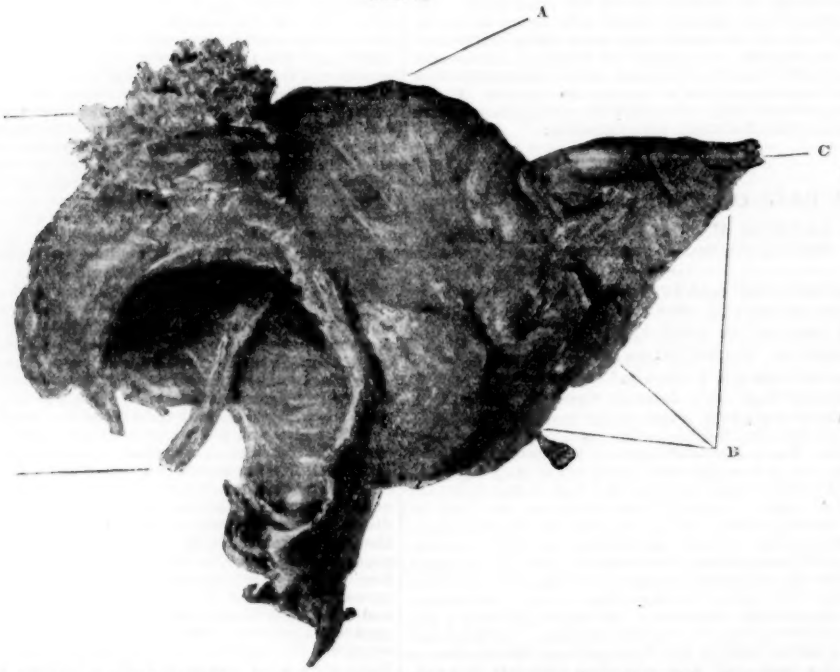
The subsequent progress of the patient was as follows. Convalescence was delayed much longer than is usual in uncomplicated cases of abdominal section, such as ordinary cases of ovariotomy. The sutures were taken out a week after the operation—i.e., on April 29th—and the wound was found to be completely healed. This was about her worst day; she was very restless and excitable. At 8 P.M. on that day her pulse was 140, and the temperature 102·8° F. She had slight hiccough and retching, bringing up a little dark bitter fluid into her mouth, but there was no actual vomiting. On May 3rd there was swelling of the right submaxillary and parotid glands, which persisted for some days, but afterwards disappeared without suppuration taking place. On the 7th the wound spontaneously reopened at the lower end, and a good deal of thin bloodstained fluid came away. On the next day the discharge became more purulent. The probe passed two inches at the lower angle of the wound, and a small drainage-tube was inserted there. This was gradually shortened from time to time, and was finally discontinued on the 19th. The temperature was highest in the third week after operation, when it reached 104° on three occasions. It was during this week that the wound broke down at the lower end as already mentioned. On June 12th the patient was allowed to sit up for three hours, and on the 15th she went for a drive. On the 18th there was some yellow discharge from the vagina, which continued for some days. On the 22nd she left London to visit her mother; at that time there was still a small sinus at the lower angle of the wound. After an absence of two months she returned to London and came to see me; the sinus had been for some time closed, and when I examined her there was a sound cicatrix at the situation of the wound. She had completely regained her ordinary health.

Remarks.—There are, I think, several interesting features in this case which may be briefly noticed. Firstly, there was in the history no distinct interval of amenorrhœa when the pregnancy began; at least, the patient menstruated on Jan. 5th, which was eight days before her time, and then again on Feb. 9th, so that on the occurrence of the latter period she was at most a very few days, if any, over her time. The first acute symptoms, which may have corresponded to a very slight rupture of the tube—perhaps, for instance, rupture of a part of its peritoneal covering—occurred in the early morning of April 1st. As the fœtus was of about three months' development conception probably took place early in January. The second severe attack of pain and faintness occurred on the 17th, about a fortnight later, and I think it must have been then that the complete rupture of the tube, permitting the escape of the fœtus into the peritoneal cavity, took place. As regards diagnosis I think it is a matter of great importance in all cases where circumstances permit to insist on a dilatation of the cervix and exploration of the cavity of the uterus before performing abdominal section. Again, as regards the blood found in the peritoneal cavity I feel sure, judging from similar cases of intra-peritoneal hæmorrhage, that the quantity of blood found in the peritoneum would have been sufficient to cause death from hæmorrhage if it had all been lost at one time. The appearance of the blood and clot however, showed that, while none of it was actually old, yet some of it was at least not quite recent; and I think, therefore,

[17] Archiv für die Gesammte Physiologie, 1890-92.

that probably the blood found was the result of several slight intermittent losses spread over the five days preceding the operation. Another point of interest was the absence of any signs of peritonitis, the surface of the peritoneum being everywhere quite normal. As regards the operation itself, the assumed that the principal rupture of the tube occurred five days before the operation, as appears to be most likely, the case shows that it is not always a question of immediate, instant operation being required to save the patient; though, no doubt, when the diagnosis of ruptured tube has once been

FIG. 1.



A, Dilated portion of the Fallopian tube. B, Cut edge of the broad ligament corresponding to the pedicle. C, Uterine end of Fallopian tube. D, Umbilical cord. E, Portion of placenta protruding from a separate rent in the sac.

only point that requires special mention is the question as to drainage. As mentioned in the account of the operation I did not use a drainage-tube, but closed the wound completely. My reason for not using a tube was that, in spite of the large amount of blood and clot present, it appeared to me that the repeated washing with many jugfuls of hot water containing a small quantity of tincture of iodine had succeeded in rendering the peritoneum quite clean. It seems possible that the use of a drainage-tube might have accelerated the patient's

FIG. 2.

The fœtus.

convalescence; on the other hand, it might not have done so; and the slow recovery might have been due to the state of extreme anæmia and weakness to which the patient had been reduced prior to the operation. If it is made the sooner the operation is performed the better. The age of the patient (twenty-eight years) and the fact that it was some seven or eight years since her only confinement are points in the case which agree with what is generally met with in cases of extra-uterine pregnancy, for most of them occur in patients of about thirty years of age and upwards, and in the majority a considerable period of sterility has preceded the occurrence of the extra-uterine gestation.

Wimpole-street, W.

ON THE RESISTANCE OFFERED BY THE BLOOD CAPILLARIES TO THE CIRCULATION.

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THERE is no question in the physiology and pathology of the vascular system on which accurate information is more urgently needed than that which has reference to the varying degrees of resistance opposed to the blood in different parts of its circuit. It has hitherto been assumed that the chief resistance is offered by the arterioles and capillaries. Such is the view taught in all the text-books. It is generally agreed that the capillaries constitute a very considerable obstacle to the flow; some observers, indeed, hold that they are even more effective in impeding it than the arterioles. Thus it is stated in "Kirkes' Handbook of Physiology":[1] "It is in the capillaries that the chief resistance is offered to the progress of the blood, for in them the friction of the blood is greatly increased by the enormous multiplication of surface

[1] Twelfth edition, p. 174.

with which it is brought into contact." This view I regard as altogether erroneous. I believe that the capillaries offer a very slight check to the blood current and that the chief obstacle is encountered in the arteries. I propose to group my arguments in favour of this view under five headings.

1. If the arterial area is opened out by removing the influence of the vaso-constrictors—e.g., by destroying the centre in the medulla or by dividing the splanchnics—the blood immediately rushes through the capillaries into the veins, which it would not do if the former offered any considerable resistance to its progress.

2. The amount of resistance encountered in any particular part of the blood circuit is measured by the loss of pressure which the blood sustains in traversing that part. If, therefore, the capillaries offer great resistance to the current, the blood must undergo a great fall in pressure as it passes through them—that is to say, the pressure in the beginning of the capillary must be much greater than at its termination. Now this assumption lands us in the following difficulties. There can be little doubt that in the engineering of the vascular system one of the most important ends in view, if I may speak teleologically, has been the protection of the capillaries from excessive blood pressure; but the above assumption implies that the capillary in the first part of its course is subjected to considerable pressure and lies in imminent peril of rupture. Assuming, however, that is can withstand this high pressure, the capillary wall will be greatly distended at its afferent part, and the distension will become less and less towards the venous or efferent end, so that the entire capillary will assume the shape of a funnel, having its apex looking in the direction of the current—a highly improbable arrangement. Further, excess of pressure in the afferent end of the capillary implies excessive exudation at this end, and it probably also implies high tension in the exuded extra-capillary fluids, and in this case the efferent end of the capillary—in which, according to prevailing views, we must predicate low tension—will run great risk of being strangled.

3. The capillary wall consists of a delicate protoplasmic film which is readily distended by the contained blood. Now this distensibility of the capillaries tends very considerably to diminish the resistance which they offer to the blood current.

4. The distance through which any one particle of blood has to travel in the capillaries is exceedingly small—about, so it is said, one-thirtieth of an inch. Moreover, the rate of the flow here is very slow owing to the widening out of the vascular bed. Now, seeing that the friction of the blood against the vascular wall varies as the length of the vessel and as the rate of the flow, the resistance which the blood encounters in a single capillary must be correspondingly small. The great extent of the capillary bed, far from being, as physiologists assume, a circumstance tending to increase capillary resistance, has the very reverse effect: the wider the capillary area into which an ultimate arteriole opens the less is the resistance afforded by that area—a fact I have experimentally demonstrated.

5. That the capillaries offer very slight opposition to the circulation appears to be conclusively established by studying the conditions under which the portal circulation takes place. The blood pressure in the portal vein is, of course, low—not many millimetres of mercury more than that in the inferior cava, in which it may be *minus;* nevertheless, this slight difference of pressure is sufficient to carry the blood through the entire capillary system of the liver. The difficulty of explaining this (for it is indeed a difficulty if we assume that the capillaries offer a great impediment to the blood-flow) seems to have been first realised by Mr. Mayo Collier in his highly original lectures on the vascular system delivered before the Royal College of Surgeons. He sought to surmount it by assuming that the compression which the liver undergoes in inspiration squeezes the blood out of it into the inferior cava. Some experiments which I have undertaken with a view to test this question make it extremely doubtful whether such compression plays any very active part in aiding the hepatic circulation during ordinary quiet breathing, and I am consequently driven to assume what I should *a priori* have expected—namely, that the portal capillaries offer but a very slight impediment to the circulation.

The above arguments seem to show that the capillaries do not oppose any but the smallest resistance to the blood current; but while, on the one hand, the capillaries are powerless to check the onflow of the blood, it is certain that the arteries can effectually do this. Witness the phenomena of Raynaud's disease, in extreme degrees of which the blood is not even permitted to enter the capillaries. I do not think physiologists have made it sufficiently clear why the arteries offer so much greater obstacle to the blood-flow than the veins. This subject, however, need not occupy us at present.

One word as to the fallacy which I have sought to expose. It has arisen, I imagine, from the fact not being kept sufficiently in view that fluids tend to conduct pressure equally and in all directions. It follows from this principle that when an arteriole breaks up into a system of capillaries the blood pressure in the terminal arteriole tends to be transmitted equally to all the capillaries of the system. The arteriole does not require a sufficient head of pressure to overcome the sum of the pressures in the various capillaries to which it gives origin. Suppose, for example, the arteriole breaks up into five capillaries and that the pressure in each is 20 mm. of mercury: the pressure in the arteriole would not require to be 100 mm. of mercury to equalise that in the capillaries; one of a little more than 20 mm. would suffice to overcome the resistance and drive the blood onwards.

THE SIGNIFICANCE OF THE GREAT EXCESS OF ARTERIAL OVER VENOUS BLOOD-PRESSURE.

Whoever sets himself the task of understanding the circulation will sooner or later find himself confronted with this question: Why is arterial so much greater than venous blood-pressure? Now a question beginning with a "why" is ambiguous, for it is susceptible of two interpretations. It may refer to causation, or it may mean: what end is served? Wherefore, to be precise, we must split our question into two parts—viz, (1) what are the physical conditions causing the great excess of arterial over venous blood-pressure? and (2) what end, if any, does this disproportion serve? In regard to the first of these two points, it is clear that the obstruction to the arterial is much greater than that to the venous flow—probably to the extent of seven or eight times. This disproportion in the amount of resistance offered by the arterial and venous systems cannot be explained by reference to the extent of surface traversed by the blood, seeing that the frictional surface of the arteries is even less than that of the veins, nor can it in any great measure be attributed to the fact that the arteries divide and subdivide into an ever-multiplying series of smaller and smaller tubes, while the veins are arranged on the reverse plan, for by means of free vaso-motor dilatation arterial resistance can be very greatly diminished; nor, again, can it be due to capillary resistance, which I have already shown to be very small. In short, the accepted explanation of "peripheral resistance" as a necessary consequence of the multitudinous division of arteries into tubes of ever-diminishing calibre, and their termination in a complex capillary network, is unsatisfactory. The effect of vaso-dilatation in diminishing resistance is alone sufficient to show this. The fact cannot be too emphatically insisted upon that very little force is necessary to drive fluid through an elaborate system of bloodvessels, and that were it not for certain physiological exigences a heart weighing two or three ounces would suffice to carry on the circulation. Here, before concluding our answer to the first question, it will be convenient to turn aside for a moment and consider the second. If the vascular system be regarded from a comprehensive standpoint, it will be seen that it has but one end in view—viz., the maintenance of a proper capillary circulation. This implies (*a*) continuousness—i.e., non-intermission of flow; (*b*) a certain average tension, which, above all, shall not be unduly high; and (*c*) the capacity of being modified in response to the fluctuating demands of the tissues. Now the great difference between arterial and venous blood-pressure follows as a necessary consequence from (*a*) and (*b*). *The arterial system is designed with a view to opposing an obstacle to the blood-current*, for without such an obstacle the elasticity of the arteries would not be called into play, and the capillary flow would become intermittent; on the other hand, *the venous system is constructed with a view to offering the minimum of resistance to the blood-flow*, in order to keep the capillary tension within certain low limits. High arterial and low venous pressure follow, therefore, as necessary consequences from the demand for (*a*) a continuous flow in the capillaries at (*b*) a low pressure.

I will now return to the subject of physical causation and inquire into the mechanism of arterial obstruction. It is by no means easy to explain this satisfactorily within the limits of the present article. The comparative narrowness

of the arterial bed is the chief factor to be considered. When the arteries are widely dilated the blood escapes readily into the capillaries and veins. If, however, vaso-constriction occurs, the driving power remaining the same, less blood will escape. The contraction of the arterial area causes an acceleration of the blood-current; but this acceleration, owing to the increased friction which it entails, is not sufficient to compensate for the diminution in volume of the blood flowing through the arteries. In short, the statement "rate of flow is in inverse proportion to area of bed" does not apply when the driving force remains the same unless the influence of friction is eliminated, which is only possible in theory; whence it follows that, in order to get the same arterial outflow as before, the *vis a tergo* must be increased. It will thus be seen that the amount of arterial resistance can be regulated with great nicety, and that the arterial outflow can be kept the same amid considerable modifications in this resistance by regulating the strength of the heart-beat. What is aimed at in the normal organism is the production of just so much resistance as shall suffice to cause the requisite degree of distension for the maintenance of a continuous capillary flow.

That the veins, in striking contrast with the arteries, are constructed with a view to minimising resistance seems indisputable, though, as far as I know, the anatomist has not studied them in this light. Two facts stand out prominently in this connexion: their great capacity and distensibility on the one hand, and on the other the numerous anastomoses of their trunks. The relatively great capacity of the veins is shown by comparing the venules and arterioles. The latter as they enter the capillary network are always smaller than the afferent venules, so that under normal conditions the capillaries can always readily discharge themselves into the veins. This same disproportion between the capacities of the arterial and venous systems is observed throughout: the veins can hold considerably more than all the blood in the body, and this not only on account of their great capacity but by reason of their distensibility; it therefore follows that the venous system as a whole can never be tightly stretched—viz., over-distended. In other words, the tension in the venous blood cannot be high—for high tension implies such stretching—and without high tension there cannot be great obstruction, since the two rise and fall together. The constant anastomosis of the veins has for its chief object the protection of the capillaries from unduly high pressure, for many veins are liable to obliteration from outward pressure, and their frequent anastomoses prevent the outlet from the capillaries being blocked. The capillaries are further protected from the injurious effects of such pressure on the veins by the valves which these latter contain.

To sum up, the very low pressure in the veins and the high pressure in the arteries are contingent upon the physiological requirements of the capillary blood-flow, but for which a heart weighing a few ounces only would probably suffice to carry on the circulation. Blood tension would then be low throughout the vascular system, and that deadly array of evils directly traceable to high tension would be practically unknown.

Devonshire-street, W.

DEATH FROM HÆMORRHAGE INTO THE PERICARDIUM.

BY CHRISTOPHER ADDISON, M.D. LOND.

IN connexion with the cases illustrative of this condition recently reported in THE LANCET by Drs. Fraser[1] and Gordon,[2] I am enabled, by the kindness of Dr. Claye Shaw, to furnish details of another interesting example which occurred in the London County Asylum, Banstead. A widow aged sixty was admitted on May 25th, 1892, suffering from melancholia. She was pale and thin (weight 7 st. 11½ lb.) and had a vacant expression. She was very deaf. Although reported "dangerous to others," she never displayed herself in this way whilst in the asylum. She had hallucinations of hearing and many delusions of suspicion and unworthiness, on which she spoke freely when questioned; at other times she would talk quietly to herself. It was noted on her admission that there was a systolic murmur audible at the apex. As time went on she became quieter and more apathetic, seeming to brood continually over her sorrows. No cause for the insanity could be ascertained. On Dec. 14th, 1892, she had an apoplectiform seizure, in which consciousness was lost for a short time (duration not stated); there were paralysis of the left arm and impaired movements of the left leg. In the course of a few days motion returned completely in the leg and to a great extent in the arm. On June 9th, 1893, a similar attack occurred, again affecting the left side; it was of a milder character than the first, and paresis was transient. The patient was able to get up and walk about the ward. In July it was noted that she had become much more demented than formerly. On Oct. 30th a third seizure took place, affecting this time the right side. The patient was unconscious during one day and in a semi-conscious state during another. There was paralysis of the arm and lower part of the face on the right side. It was difficult to ascertain whether the speech was affected. The urine and fæces were passed into the bed. On Nov. 6th she was reported as having improved; her mental condition was clearer, and she was less wet and dirty. The paralysis continued. On Nov. 23rd, at 8 A.M., she was fed with a breakfast of sop. She had finished the meal and apparently swallowed well, when she sank back and, without struggling, ceased to breathe. Dr. Nixon was called and was in attendance at once. He found her to be quite dead. There was no sop in the mouth.

Post-mortem examination.—This took place on Nov. 24th. The state of the body, the skull cap, and the dura mater presented nothing noteworthy. Much fluid remained in the posterior fossæ after removal of the brain. The sub-arachnoid space of the left hemisphere contained many lakelets of fluid. The arachnoid and pia mater stripped off the convolutions with slight laceration and were not thickened, save around the softened patches. The arteries at the base were not atheromatous. Over the middle of the left ascending parietal convolution there was a yellow patch of softening to the superficial extent of half an inch. On the same side, behind the external parieto-occipital fissure on the superior occipital convolution, there was a depression with a floor of yellow softened material extending in the middle line, superficially, for one inch and a half; passing into the longitudinal fissure, it increased to two inches and a half antero-posteriorly and involved the cuneate lobule, and, in front of the internal parieto-occipital fissure, the posterior part of the marginal convolution. On the right side, of somewhat less extent than on the left, there was a similarly situated patch of softening. At the anterior part of the longitudinal fissure there was some adhesion between the hemispheres enclosing a certain amount of fluid; at the posterior part of the upper surface of the cerebellum, on either side of the middle line, there was a cup-shaped depression (able to lodge the end of the index-finger), the floor of which presented similar yellow softening. On section the substance of the brain was found to be generally soft. The superficial grey matter presented nothing to note. There were some dilated perivascular spaces. In both occipital regions, corresponding to the depression noted, the substance of the brain was yellow and soft to the depth of an inch, the right side being less affected than the left. The softened area presented a sharp line of distinction from the rest of the brain substance. The change in the left ascending parietal convolution extended to a depth of a quarter of an inch. The lateral ventricles were a little dilated. The fluid was normal in appearance. The ependyma in the region of the choroid plexuses was somewhat thickened. There was marked depression of the anterior ends of both caudate nuclei, and section at this spot revealed no softening. The change noted in the cerebellum extended to a depth of a quarter of an inch. Examination of the internal capsule, crura cerebri, pons, medulla, and other parts of the brain revealed nothing abnormal to the naked eye. On opening the chest the pericardium appeared to be distended; after making an incision into it a large blood clot was seen in its interior. The whole contents of the sac were turned and consisted of six ounces of clot and five ounces of bloody fluid; the heart was removed, and its weight was found to be twelve ounces and a half. On inspection the left ventricle presented about the middle of its left border a small radiate opening. On section this was found to lead into an irregularly shaped cavity situated in the wall of the heart; roughly, it was circular, with a diameter of about two inches. The muscle substance was separated into two layers, the outer of which, in the neighbourhood of the rupture, was extremely thin—not more than one-sixteenth of an inch in thickness; further away it became thicker. The interior of the cavity

[1] THE LANCET, Jan. 6th, 1894. [2] THE LANCET, Dec. 2nd, 1893.

was rough and torn at the circumferential parts, but smoot over the thinner central region. The inner wall, generally thicker than the outer, was bulged towards the cavity and also presented at its central part a rupture, torn rather more widely than the external one; the wall around the rent was one-eighth of an inch in thickness. The valves of the heart did not present any vegetations and did not appear to be incompetent. The left coronary artery when dissected out was found to be very atheromatous and showed many thickened patches and local bulgings; one large branch was distinctly seen to terminate in the right upper part of the cavity; but it was not possible to inject fluid through the vessel to this place, apparently because of the extensive thickening on account of the blood clot contained in its canal. The wall of the left ventricle, apart from the site of the lesion, was thicker than usual. The right heart was not dilated. Microscopical osmic acid preparations of a portion of the wall of the left ventricle showed fatty degeneration in parts of the sections. The lining of the aorta presented a few small, white, atheromatous patches. There were some old scars containing portions of calcareous matter at the apex of the right lung. There was no emphysema or congestion. The larynx and trachea were normal. The left kidney weighed three and a half ounces and was granular and shrunken. The right kidney weighed four and a half ounces; its capsule tore off portions of its substance on being stripped. The liver and other organs presented nothing noteworthy.

Remarks.—As to the immediate cause of death, the appearances were those of an aneurysm of a branch of the left coronary artery, which had dissected up the substance of the heart into two layers, the outer one, as would have been expected, being the thinner of the two. In contrast to the condition of the aorta and cerebral arteries, the amount of atheroma of the coronary vessel was very marked indeed, the whole of the vessel from its origin to the aneurysm being affected. Both walls of the sac were found to be ruptured. Perhaps the explanation is that, the outer having ruptured first towards the pericardial sac, the attenuated inner one was not able to withstand the force of the next contraction of the ventricle and gave way too. The fact that the rupture in it was larger than that in the outer wall accords with this supposition. It does not seem to be so likely that the inner one should rupture first and the outer follow; and, moreover, in such a case one should have expected the rent in the outer wall to be the larger of the two. The changes in the kidneys, the existence of atheroma, and the hypertrophy of the left ventricle, apart from the aneurysm, speak for themselves. Certain measurements of the skull and notes of other matters, made chiefly in connexion with the brain, are not given, nor are comments made on the apoplectiform attacks. The case is brought forward at this time in connexion with the mode of death.

St. Bartholomew's Hospital, E.C.

A CASE, DIAGNOSED AS TUBERCULAR MENINGITIS, TREATED BY TREPHINING AND DRAINAGE OF THE SUBARACHNOID SPACE; RECOVERY.[1]

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A GIRL five years of age was admitted into the Victoria Hospital for Sick Children, Chelsea, on Oct. 23rd, 1893. Up till five weeks previously she had been perfectly well, and had never had any fits or otorrhœa; but about the middle of September she began to suffer from acute pain in the head. She had occasional vomiting, she was very fretful, her appetite was bad, and her bowels were constipated. There was no history of tubercle in her family. When first seen the child presented a dull, heavy appearance; she was very restless and uttered from time to time a shrill scream. When asked if she felt pain she put her hand to her forehead; she lay with her head bent forward and her legs drawn up. The temperature was 101 6° F., the pulse was 104, regular and weak in volume, and the respiration was 20, regular. There was no lesion discoverable in the thoracic or abdominal viscera. Tache cérébrale was well marked; the knee-jerks were normal. There was commencing optic neuritis in both eyes, being less marked in the right. During the first night she was very restless, constantly screaming. There was no vomiting, but she took food badly. The optic neuritis became more marked. On the night of Oct. 25th she was evidently suffering from great increase of pain. She screamed almost without intermission from the evening of that day until 6 A.M. on Oct. 26th. There was no retraction of the head nor vomiting. The pulse at 2 P.M. was 108, regular. She referred the pain to the frontal region. When the patient was seen again by me at 3 P.M. she was evidently worse. I then asked my colleague, Mr. Waterhouse, to examine her with me. We found the pulse to be wavering in a striking manner. At one time it was 120 per minute and regular, on a second occasion it was 70 per minute, with several intermissions, and two or three minutes later it was 80, with no intermission. The respiration was regular, but inspiration was long-drawn. The child was lethargic and apathetic, except for the typical hydrocephalic cry she uttered at times, and she lay on the left side with the lower limbs slightly flexed on the abdomen. She had the appearance of one rapidly passing into a state of coma. The abdomen was retracted, the face was pale, and the tache cérébrale was well marked. The temperature was 101°. On examining the eyes we found that the pupils had been dilated with homatropine, and therefore no account can be given of their size and mobility, but the notes stated that they had been contracted on admission and had become more dilated before the homatropine was instilled. There was no ptosis or strabismus as far as could be ascertained. Upon ophthalmoscopic examination optic neuritis was found, being marked on the left and less marked on the right side. The ears were examined and the membrana tympani was seen to be healthy on both sides. We agreed that the child was suffering from tubercular meningitis, that there were distinct signs, as evidenced by the great pain and optic neuritis, of increased intra-cranial pressure, that the child was rapidly approaching the stage of coma, and that if such pressure should be unrelieved, there was every probability of death taking place in a few hours from compression. On these considerations we agreed that an operation for the relief of the pressure was both justifiable and advisable. It was decided to open the subarachnoid space, and to drain this space for a few days. There was some doubt in our minds whether to open the subarachnoid space of the brain or of the spinal cord, but eventually it was decided that the opening should be made into the cranial cavity, and we feel convinced that this was the right decision. Accordingly at 5 P.M. the child was placed under chloroform, and, after the scalp had been shaved and rendered aseptic, a curved incision about two and a half inches in length was made over the left cerebellar fossa of the occipital bone, commencing below and behind the mastoid process, passing with its convexity upwards, and ending externally to the external occipital crest. The occipital artery bled furiously and was tied, and the pericranium was raised in a flap corresponding to the scalp flap. There was some bleeding from the torn mastoid vein. A trephine, three-quarters of an inch in diameter, was then applied midway between the external occipital crest and the mastoid process. The disc of bone removed was placed in warm boric solution. The dura mater bulged tensely into the trephine opening, and no pulsation was observable. The dura mater and arachnoid were then incised, and some thirty drops of a slightly greenish serous fluid escaped. The cerebellum then bulged into the foramen in the skull, fitting it tightly, like a cork in a bottle. A silver probe, the terminal half-inch of which was bent to a right angle with the rest of the instrument, was then inserted between the cerebellum and the arachnoid inwards towards the falx cerebelli. As soon as the latter was felt the probe was rotated, so that the end projected forward into the large subarachnoid space between the cerebellum and the medulla. Some drachms of the serous fluid at once escaped. A drainage-tube was then passed along the probe and left in position; it was found that fluid passed slowly along it. The dura mater was then sutured, and the disc of bone having been cut up into small fragments with bone forceps, these were packed carefully in a mosaic, after the manner of Professor

[1] A paper read by Dr. W. W. Ord before the Medical Society of London, March 5th, 1894.

Macewen, so as to fill the foramen, leaving only room for the drainage-tube in the centre. The latter was then brought out through a hole made in the centre of the flap; the flap was readjusted with horsehair sutures, and the wound was dressed with cyanide dressings. The child bore the operation well, and the pulse rose from 80 to 120 on the removal of the fluid.

The after history of the case, largely obtained from notes made by the house surgeon, Mr. C. J. Harrison, was as follows:—"Oct. 26th, 11 P.M.: The child is doing well, and the temperature has fallen to normal. She has been a little sick during the evening, but she has not shrieked or had any convulsive movement.—27th: The child has passed a good night; she vomited twice; the pulse is 112, and the temperature 99° F. At 6 P.M. the temperature rose to 102·6°. The wound was dressed; the dressings were soaked with blood-stained serous discharge.—28th: The child is sensible, and answers questions; she has passed a good night. The temperature (2 P.M.) is normal; it rose to 103° at 6 P.M. At 10 P.M. it was 101°. The optic neuritis is less marked than it was before the operation, but it is still more noticeable in the left eye than in the right.—29th: The child is better. The temperature (6 P.M.) is 102°; she takes food well. The discharge from the wound had soaked through the dressings, which were voluminous, and was serous in appearance; the dressings were changed.—30th: The patient has slept pretty well during the night. The temperature was subnormal at 10 A.M. The wound was dressed, the dressings being soaked with a colourless discharge, evidently cerebro-spinal fluid. In the afternoon Mr. Holmes Spicer kindly examined the child's eyes and reported as follows: 'Both discs are in the same condition. A considerable amount of glistening white effusion, extending for some distance from the optic disc, is present. The veins are engorged and somewhat tortuous. No hæmorrhages or tubercles of the choroid can be seen.'—Nov. 2nd and 4th: The wound was dressed, the dressings being soaked with serous discharge; the wound appeared healed except where the drainage-tube emerged.—6th: The wound was dressed; it appears to be breaking down in parts; the stitches were removed; the child vomited several times during the day.—From Nov. 6th to the 20th the wound suggested strongly a tuberculous infection, with its gelatinous-looking granulations and thin watery discharge. The tube was removed on the 13th. The temperature during this period varied from subnormal to 103·4°, rising and falling fitfully.—On the 20th Mr. Spicer reported: 'There is a considerable amount of swelling of both discs, but more in the right than in the left. The margins are indistinct, but there is less of the glistening white effusion than there was when the last note was made.' About this time two small granulations were removed from the wound, but the examination of them by Dr. Arkle proved negative.—27th: During the preceding week the child has improved remarkably. Mr. Spicer reports: 'The condition of the eyes is much the same as last week. The top of the disc can be seen with +6 D.' The wound was dressed with boric ointment and there was very little discharge.—On Nov. 30th the child was apparently quite well. She sat up to her meals at the table in the ward; she said that she felt quite well, and had had no headache 'since she had the chloroform.' The temperature fell to 98° on Nov. 18th, and never rose after that above 98·8 until the middle of December, when the child had an attack of measles, from which she recovered without a bad symptom."

Personally I had for some years considered that early operation for the purpose of relieving the effusion in cases of meningitis was a method of treatment that should be tried. I think I was originally led to this by reading a passage by Professor Henoch of Berlin in a clinical lecture on tubercular meningitis. He says: "I do not regard it as impossible to bring about recovery by opportune treatment at the beginning of the cases, when the tuberculosis is not general but localised, as our main object at this stage is to arrest the commencing inflammation of the pia mater, and to prevent a more extensive exudation, which might affect the cortical substance of the brain."

We think that we may fairly state that this was a case of acute meningitis with effusion, but the fortunate result renders it impossible for us to state absolutely that it was of a tubercular nature. The condition of the child, however, was that with which we are accustomed to associate tubercular meningitis, and there was not one of the eight medical men who saw the case first before operation who did not concur in our diagnosis. In operating early we were guided by the consideration that this mode of procedure should be attempted, if possible, before any marked signs of pressure have become developed, as we consider that the amount of pressure necessary to produce all the classical symptoms may come dangerously near causing permanent cerebral lesion. Gowers[2] says: "If the stage of coma has been reached death is almost certain." To those who may say that it could not have been a case of tubercular meningitis because the patient recovered, our answer would be that this is no argument, for it would have been used twenty years ago in a case of tubercular peritonitis. That there is spontaneous cure in a certain number of cases of tubercular meningitis is stated by Bristowe,[3] Henoch,[4] Hillier,[5] Osler,[6] Jacobi,[7] Ord,[8] Gowers,[9] and other authorities. For instance, the last-mentioned writer says: "Unquestionably cases recover in which the existence of meningitis admits of no doubt, and in which there is a strong presumption that the inflammation is tuberculous, although the recovery removes the possibility of rigid proof." Many of us here have seen remarkable cases of cure, apparently permanent, from tubercular peritonitis as the result of laparotomy and removal of fluid, and we take it that, supposing, as we believe, our case to have been of a tubercular nature, the *modus operandi* of cure was somewhat similar. We think that it will be admitted that in tubercular peritonitis in children there are two types: (1) the dry, doughy type, with much tubercular formation and little fluid; and (2) the type in which there is a large quantity of fluid and but little tubercular material. Everyone will, we are sure, admit that it is in the latter class that we obtain the best results from abdominal section and the removal of fluid. We think we may reasonably suggest that there are the same two types recognisable in tubercular meningitis. All of us have seen in the deadhouse case of this disease in which there was a large amount of tubercular formation and but little effusion, and, on the other hand, cases in which, though the tubercles were comparatively few, and limited perhaps to the Sylvian fissure, the fluid effusion was large in quantity. Our belief is that the case in question was of the latter type. The temperature is very suggestive of tubercular meningitis, and it is certain that if its hectic character from Oct. 23rd to Nov. 18th had been due to a tumour, large or small, either of tuberculous or gliomatous character, this symptom would have persisted. Yet on Nov. 18th the temperature fell to normal, and has remained normal or subnormal ever since. We think that this alteration in the character of the temperature may point to the arrest of a tubercular process. If this was not a case of tubercular meningitis, what, then, was it? It was evidently a meningitis, accompanied by effusion, and we submit that the balance of probability is in favour of its tubercular nature. The hectic temperature, the occasional vomiting, and the persistence of the optic neuritis all tend to support this view. As regards the last symptom we think that all who have had experience of ophthalmoscopic work among children will agree that tubercular meningitis is the commonest cause of double optic neuritis in them. As regards the type of neuritis, we think it probable that it was not "choked disc" or engorgement neuritis, but neuritis caused by direct transmission of inflammation from the meninges to the optic nerve, such as, according to Fuchs and von Graefe, usually occurs in tubercular meningitis—the "neuritis descendens" of continental writers. The behaviour of the wound also deserves some attention; it healed rapidly by first intention, and then began to break down in parts on the eleventh or twelfth day after operation, healing soundly, however, after a few days under the free use of iodoform. This is the condition so often seen in the recent scar after operation for surgical tuberculosis; but we do not wish to attach too much importance to this point, as it is to be remembered that the wound was for several days soaked in cerebro-spinal fluid. A most noticeable point is that none of the pieces of bone implanted came away, but the fragments have evidently now grown into a firm disc. In connexion with this case we wish to draw attention to two communications to THE LANCET by Mr. Parkin[10] of Hull. Mr. Parkin has related four cases in which he performed an operation of the same nature as our case with

[2] Diseases of the Nervous System.
[3] Theory and Practice of Medicine, fifth edition, p. 990.
[4] Lectures on Children's Diseases, Sydenham Society's Transactions, p. 317.
[5] Diseases of Children: Article, Tuberculous Meningitis.
[6] Principles and Practice of Medicine, 1893, p. 204.
[7] Keating's Encyclopædia: Article, Tuberculous Meningitis.
[8] Ord: St. Thomas's Hospital Reports, 1878.
[9] Diseases of the Nervous System.
[10] THE LANCET, July 1st and Nov 18th, 1893.

complete recovery of one child, who suffered from chronic hydrocephalus. It is interesting to note that, although we had not seen Mr. Parkin's earlier communication previously to our case, the same position was selected for operation in his case and in ours, with the exception of the difference in the side, his being on the right, ours on the left.

In conclusion, we venture to hope that, though we do not pretend to have proved this to have been a case of "tubercular" meningitis cured by operative treatment, we have adduced evidence tending towards establishing the tubercular nature of the case. We both of us feel that in this instance the patient owes her life to the operation, and in view of the desperate prognosis in this disease and of the successful result obtained by operative treatment in our case we have ventured to bring this paper before the society.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

ACUTE ABSCESS OF FRONTAL SINUS WITH NECROSIS, SIMULATING ORBITAL CELLULITIS.

BY C. RAMAGE, M.D. EDIN.,
LATE HOUSE SURGEON AT THE MANCHESTER ROYAL EYE HOSPITAL.

THE case recorded by Mr. Mayo Collier in THE LANCET of Jan. 27th last, brought to my recollection a somewhat similar one which came under my notice while house surgeon in the Manchester Royal Eye Hospital.

A young man twenty-one years of age was admitted to the hospital as an in-patient under the care of Dr. Little (to whom I am indebted for permission to publish the case) on July 21st, 1891, complaining of severe pain and swelling in, with a purulent discharge from, the left orbit. He had enjoyed good health until two months previously, when he was attacked by influenza. While ill he noticed a swelling beginning in the left orbit, which became painful and, five weeks before admission into hospital, ruptured, allowing the escape of pus. There was no history of any accident. On admission the left eye was protruded and displaced downwards and outwards, but was fairly movable in all directions. The conjunctiva was injected, the cornea clear and the pupil active. There were much swelling and redness of all the tissues surrounding the eye, extending upwards over the frontal sinuses and downwards over the malar bone on to the cheek. The slightest pressure over the swelling, which seemed of a firm consistence, especially at the upper inner angle of the orbit, produced intense pain. There were two sinuses, surrounded by granulations discharging fetid pus. One was situated just above the left lacrymal sac and the other was half an inch above and external to it. There were a fetid purulent discharge from the nose and marked frontal headache. The same afternoon I made a free incision, connecting the sinuses, snipped off the granulations, removed a large sequestrum of dead bone, scraped out the frontal sinuses, removing a lot of cheesy looking material, and inserted a drainage-tube in the wound. Iodide of potassium was given internally, as the characteristic notched teeth were present. The patient did well, and on Aug. 7th he was discharged, the eye having resumed its normal position, with free mobility and unimpaired vision. The wound was closing from below upwards so as to obliterate the frontal sinuses, and the thickening over the upper margin of the orbit and on the cheek had completely subsided. There was no discharge from the nose. I saw the patient again on Sept. 17th, 1892, and found the eye normal regarding position, mobility, and vision. A cicatrix more than an inch long existed at the upper inner angle of the orbit, with a depression, into which the tip of the little finger could be placed, where the dead bone had been removed and the frontal sinus obliterated. The nasal passages were healthy.

The chief points of interest in the case are: 1. Acute suppuration of the frontal sinus as a sequel of influenza. 2. The presence of a large sequestrum. This was almost three-quarters of an inch square and was exceedingly thin, the lower half consisting of the orbital plate of the frontal and the upper half of the vertical plate. It is very rare that a large sequestrum like this is found. 3. The discharge from the nose, indicating that communication between it and the frontal sinus had been re-established. To the two latter factors the rapid and successful issue of the case is to be attributed.

Hornsey-road, N.

EXTRACT OF BONE-MARROW IN THE TREATMENT OF ANÆMIA.

BY J. DIXON MANN, M.D. ST. AND., F.R.C.P. LOND., &c.,
PHYSICIAN TO THE SALFORD ROYAL HOSPITAL.

THE red marrow of bone being probably the chief agent in promoting the development of red blood-corpuscles, it seemed feasible to suppose that an extract of this substance, if introduced into the human organism whilst in an anæmic state, might act as a stimulant to the formative process and increase the rate of production of the red corpuscles. In adult animals—as the ox—red marrow is limited to the larger bones of the trunk, the thick parts of the skull, and the heads of the long bones; the shafts of the latter contain yellow marrow, which is chiefly composed of fat. In young animals—as the calf—red marrow is more abundant and may be found in the shafts of the long bones as well as in the parts just named. As the tissue-forming power in young animals is more active than in older animals the bones of the former are preferable as a source of marrow extract. To prepare the extract the heads of the long bones, obtained from recently killed animals, with other portions of bone which contain red marrow, are broken into small pieces and digested in glycerine with frequent agitation. When the extraction is complete—several days being required—the extract is filtered off and is ready for use.[1] It is red or reddish-brown in colour and is devoid of any unpleasant taste or odour. It may be given in teaspoonful doses once or twice a day either out of the spoon or spread between thin pieces of bread. The first case in which I tried the extract was that of a little boy, the subject of hæmophilia. This child had repeatedly been in the hospital under the care of one or other of my colleagues or of myself for attacks of hæmorrhage. On each occasion the bleeding ceased; but the patient never lost the pallor of pronounced anæmia, although he was treated with iron, arsenic, cod-liver oil, and all kinds of appropriate nourishment. The last time that he was admitted the red corpuscles were counted after the hæmorrhagic symptoms had subsided and were found to be 3,800,000 per cubic millimetre. The patient was then (Sept. 13th, 1893) put on marrow extract without any other treatment, and after an interval of three weeks the corpuscles were again counted; they now numbered 4,190,000, and one month later they reached 4,400,000. Coincidentally with this increase there was a marvellous improvement in the appearance of the child; his face acquired an amount of healthy colour never previously observed during his many visits to the hospital. In a second case, that of a young woman twenty years of age with long-standing anæmia, the corpuscles numbered 3,700,000 per cubic millimetre; after taking the marrow extract for three weeks they increased to 4,000,000. She then left the hospital. In another anæmic girl the increase in nine weeks was from 1,350,000 to 3,680,000. A man was admitted for profuse hæmatemesis; after the bleeding ceased the red corpuscles were found to be reduced to 1,070,000 per cubic millimetre. He was put on marrow extract without other treatment, and, when counted on the fifteenth day, the corpuscles numbered 3,050,000. I am indebted to our house surgeons, Messrs. Newby and Brown, for these observations. I am encouraged by these and many other favourable results to direct the attention of the profession to marrow extract as an agent capable of affording, to all appearance, valuable aid in the treatment of anæmia and also of oligæmia due to loss of blood from causes such as placenta prævia, hæmorrhoids, and wounds.

St. John's-street, Manchester.

[1] May be obtained from Mottershead and Co., Manchester.

PRESENTATION.—Mr. Maurice Treston, L.R.C.P., L.R.C.S. Irel., of Sparkhill, Birmingham, has been presented with a silver-mounted salad bowl and service by the Sparkhill Ambulance class.

A Mirror
OF
HOSPITAL PRACTICE,
BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Procemium.

WEST LONDON HOSPITAL.

A CASE OF BILIARY COLIC; CHOLECYSTOTOMY.

(Under the care of Dr. BALL and Mr. BIDWELL).

THE following is an interesting case of operation for the removal of gall-stones from the gall-bladder, where there was no evident distension of the gall-bladder, nor jaundice. With regard to similar cases Mr. Greig Smith [1] has written: "No general rule can be laid down as to the weight of the indication arising from hepatic colic. After months or years of intense suffering many patients get well and remain so. On the other hand, a patient's life may be rendered miserable, or his active existence as a breadwinner may be cut short, by persistently recurring attacks of hepatic colic. A time then comes when patient and surgeon both agree that it is proper to interfere. In all such cases the patient's desire must have great influence with the surgeon." For the notes of this case we are indebted to Mr. J. H. Wilks, house surgeon.

A man thirty years of age was admitted into the West London Hospital on Nov. 27th, 1893, on account of severe attacks of abdominal pain. The first attack of acute pain occurred about two years previously, and was so severe that the patient lost consciousness and perspired profusely. He said that he was confined to bed for three days and that he became yellow. There was no further trouble until about eight months before, when he had a similar attack, again losing consciousness and becoming yellow afterwards; there was a third attack three months previously, and the last one occurred one month before admission. These attacks of pain commenced with a suffocating sensation, followed by very intense pain just below the ensiform cartilage; this pain lasted for about two days, but was only severe for about twelve hours; it was accompanied by vomiting, profuse sweating and shivering. When the pain occurred he always went to a hospital, where morphia was given him. These seizures were generally followed by constipation and a tight feeling across the chest; but otherwise his general health had not been affected, and there had not been any loss of flesh. He had not had any other illness, he came of a healthy family, and was temperate in his habits. The patient, when admitted, was a muscular and well-nourished man, apparently in good health, but slightly sallow. His appetite was good and his tongue was clean and steady, but he suffered from eructations and constipation. Nothing abnormal was noticed about the fæces; no gall-stones were found. The heart and lungs were normal. The urine was normal. There were no bile acids or pigment. The liver dulness extended up to the fifth interspace in the nipple line, but its edge was not felt below the costal arch. The gall-bladder could not be felt, but there was a feeling of resistance, and the patient complained of soreness in this region. There was no enlargement of the spleen. The abdominal muscles were very well developed and the walls were rather resistant. As the patient was very anxious to have some operation done to prevent the recurrence of these attacks, it was decided to explore the gall-bladder. On Nov. 29th the operation was performed by Mr. Bidwell, under ether. An incision four inches long was made in the right linea semilunaris, starting from the top of the ninth rib; the rectus, which was very well developed, overlapped the transversalis, causing some difficulty; at this point, too, the patient stopped breathing, and artificial respiration had to be undertaken. After a few minutes, however, the breathing became natural, and after the bleeding points were ligatured the peritoneum was opened. The gall-bladder, which did not reach the edge of the liver, was found to be closely packed with stones, without any fluid; there were some adhesions between it and the great omentum, which were ligatured and divided. A large flat sponge was introduced into the abdominal cavity, and, after pulling up the gall-bladder into the wound, an incision was made into its fundus and the edges were clamped with pressure forceps. The stones were removed with forceps and a scoop, and were rather friable, many being broken during removal. The stones extended into the cystic duct; these, which were larger than the others, gave some trouble in removal on account of a definite constriction between the gall-bladder and the cystic duct; 212 stones were counted, and varied in size from a millet seed to a hazel nut. Before the completion of the operation bile began to flow from the gall-bladder, and required frequent sponging to prevent its entrance into the peritoneal cavity. The gall-bladder was stitched to the parietal peritoneum by a continuous fine silk suture, and a rubber drainage-tube five inches long was passed into the cystic duct. The peritoneum was sponged out, and several small fragments of gall-stones were removed on the sponges; the rest of the abdominal incision was united with silkworm gut sutures and the wound was dressed with cyanide gauze and wood-wool pads, the lower part being supported by strapping. The dressings were completely soaked with bile within a few hours after the operation, and were changed. On Nov. 30th the patient was comfortable and slept well without any morphia, and only complained of some pain in the wound. There was some distension in the right flank, but there was no abdominal tenderness or general distension. There had been no vomiting, and milk and barley-water were given by the mouth. The dressings were saturated with bile, and required changing twice in the day. The drainage-tube was shortened half an inch daily and was removed on Dec. 7th, although there was still a considerable quantity of bile in the dressings. He had a little bronchial irritation after the ether, but this quickly passed off. The temperature never rose above 99·6° F. after the operation and after the fourth day remained normal. Solid food was given on the third day and the bowels were opened with an enema the same day. The wound healed readily with the exception of the tract of the drainage-tube, which, however, was closed on his discharge from the hospital on Dec. 23rd, 1893. The wound was supported with strapping for a month.

Remarks by Mr. BIDWELL.—I have recorded this case as the operation was performed solely on account of the sudden attacks of pain in the epigastrium; even the history of jaundice was not definite. There was absolutely no swelling and very little tenderness in the region of the gall-bladder, and as it reached the edge of the liver it could not have been felt, especially as the patient was a muscular man with well-developed recti muscles; yet the gall-bladder was closely packed with stones without, however, any fluid. The operation of cholecystotomy is now so free from risk in non-jaundiced cases (as has been shown by Mr. Mayo Robson) that it seems justifiable to operate even where, as in this case, only three or four attacks of biliary colic had occurred, instead of waiting till the patient is worn out by a long series of attacks. We must also be ready to operate where there are no physical signs of a distended gall-bladder and where the only symptom has been pain; but, of course, we must be prepared in some of such cases to find no stone. This happened to me lately in the following case. A patient for two or three years had suffered from attacks of epigastric pain, which occurred nearly every day, and were only controlled by hypodermic injections of morphia, which he took freely. After consultation with a physician it was decided to explore the gall-bladder, which I did, but found no stone; the gall-bladder, however, was thickened, and there were some adhesions about it. It was opened and drained, the patient making a rapid recovery. Three months later he left England, and wrote that he had had no further attacks of pain. In this case most probably the pain was due to the effects of inflammatory thickening caused by gall-stones which had been passed. In neither of these cases has any ventral hernia followed.

[1] Abdominal Surgery.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.

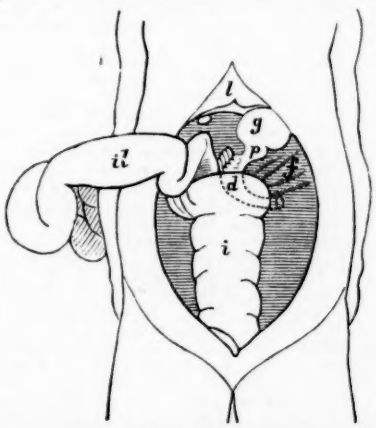
COMPLETE ILEO-CÆCAL INTUSSUSCEPTION; NECROPSY; REMARKS.

(Under the care of Mr. WINTER.)

THIS case is a good example of chronic intussusception of the most common form—the ileo-cæcal. The account is a full one, and the chief points which are suggested by it as deserving of attention are referred to by Dr. Edward

Deanesly, late house surgeon, in his remarks, to whom also we are indebted for the notes of this case.

A female infant aged seven months was admitted to the Wolverhampton and Staffordshire General Hospital on June 9th, 1893, the following history being obtained from the mother. The infant had seemed to be poorly for a month, but no definite symptoms had been noticed till June 4th, when the bowel came down outside the body for the first time. The mother replaced it. On June 6th she gave her castor oil and on the next day the bowels acted naturally. On June 8th the infant seemed to be worse; she refused the breast and the bowel again appeared outside the body. On June 9th the bowel remained down and a little blood and slime were passed. She refused the breast and vomited several times. On admission in the evening of June 9th the child had a moderately well nourished and healthy appearance, but the face was slightly pinched. An intussusception projected about three inches through the dilated anus. It was conical in form and slightly curved, with the concavity looking backwards. At its apex there were two apertures. The larger of these lay to the right, admitted the first joint of the index finger, and appeared to end blindly at that depth. The smaller one, which was to the left, admitted the little finger for the whole length without any sign of terminating. The latter opening was



l, Liver. *g*, Stomach. *p*, Pylorus. *i*, Intussusception. *il*, Ileum. *f*, Folds of mesentery. *d*, Duodenum. (Dotted line shows position behind mouth of intussusception.)

judged to be the ileo-cæcal junction, and the former the entrance to the caput cæcum coli, which apparently was not inverted. The mucous membrane had a bluish colour, and about two square inches in one part were covered with grey lymph. This, however, was apparently due to the friction of the diaper, for the mass was not strangulated and the circulation was only slightly impeded. The general appearance of the mass strongly resembled the ordinary prolapsed rectum of infants, so much so, in fact, that at the first glance it was taken for that condition, until it was noticed that its base was not attached to the margin of the anus in the ordinary way. It was easily returned within the rectum, and on pushing it upward as high as possible the ordinary sausage-shaped tumour could be felt in the right side of the abdomen. The child appeared to suffer very little pain during these manipulations. Chloroform was then given and about one pint of warm water was introduced into the rectum by means of a large-calibred rubber stomach tube and a funnel raised to a height of two feet, the abdomen being gently manipulated at the same time. After the water had been allowed to escape no tumour could be felt in any part of the abdomen by the most careful bimanual examination with one finger in the rectum and one hand on the abdomen. In passing, attention may be called to the extreme thoroughness with which the abdomen of an infant can be examined in this way when the muscles are relaxed by chloroform. A few drops of brandy-and-milk were ordered every hour, and five-eighths of a minim of tincture of opium sufficiently often to keep the child absolutely quiet. On the following day the infant looked better; she had not been sick, and she seemed to be hungry. The bowels had acted twice with natural evacuations. On June 11th she seemed to be very drowsy, and the opium was therefore discontinued. The bowels acted once. Towards night she was sick. On June 12th the intussusception protruded from the anus exactly as before. Chloroform was given, and reduction was effected by a tube and funnel. Opium was ordered. On June 13th it was down again, and it was reduced under chloroform. On June 14th the infant died at 4 30 A.M.

Necropsy made on June 14th.—The intussusception projected from the anus exactly as it did on admission. On opening the abdomen in the usual way, and turning aside the small intestines the intussusception was found to be in the exact centre of the abdominal cavity. It lay alongside the spine and closely attached to it by the meso-colon, and it passed straight downwards from about the third lumbar vertebra to the pelvic outlet. It was almost perfectly cylindrical in form, and was about two inches in diameter. The outer layer was composed of rectum and sigmoid flexure, the natural curve of the latter being quite obliterated by the invagination. The upper part of the sheath was expanded into a funnel-shaped mouth, into which entered the lower part of the ileum, together with the puckered and folded mesentery. Immediately above and behind the mouth of the intussusception lay the pylorus and first part of the duodenum, the latter being thrown into transverse folds. The peritoneal covering both of the small intestines and of the sheath of the intussusception was perfectly glistening and presented no signs of congestion or of inflammation. The small intestine was pale and contracted where it entered the intussusception, and immediately above that point a coil several inches in length was considerably distended; beyond that coil it was quite normal in size and appearance. The intussusception was now returned inside the rectum and then pushed up with the finger as high as could be reached. An attempt was then made to reduce it from above by pulling the entering part of the ileum, but it was found to be impossible to do so. The finger and thumb of one hand were then made to encircle the bowel immediately below the position of the apex of the intussusception, while the other hand grasped the bowel a few inches lower down. The encircling fingers were then drawn upwards, carrying the apex of the intussusception before them in the same manner as the contents are squeezed out of a loop of bowel by drawing it between the closed finger and thumb. By this method—the advantages of which were pointed out by Mr. Barker in a case on which he had operated—the reduction was effected with ease, there being not the slightest adhesion between the opposed peritoneal surfaces of the entering and returning layers. When the invagination had been completely reduced the only part of the intestine which exhibited any sign of congestion was that which had protruded from the anus. This consisted of the cæcum and the first few inches of the small intestine. The intussusception was of the ordinary ileo-cæcal variety, the ileo-cæcal aperture lying at the apex of the projecting mass. The caput, however, was not inverted, but lay between the entering and returning layers with the appendix, so that the second of the two openings at the apex of the intussusception led, not as is generally described, into the vermiform appendix, but into the uninverted caput cæcum. This point was clear during life from the fact that the opening in question readily admitted the first joint of the index finger and then ended blindly. The meso-colon was of remarkable length, the whole colon being almost as freely movable as the small intestine. The meso-cæcum and ascending meso-colon were as long as the transverse meso-colon, which was itself longer than normal, so that without any kind of dissection or tearing of its peritoneal attachments the cæcum could be lifted out of the abdomen and placed on the lower part of the chest. There was no abnormality of any other abdominal viscera.

Remarks by Mr. DEANESLY.—The chief interest of this case centres in the necropsy. Although according to Leichtenstern's table, quoted by Treves, a tumour projecting from the anus occurred in no less than 20 of 100 cases of the ileo-cæcal variety, I have not been able to find any accurate description or figure of the anatomical relations of the abdominal viscera in such cases, the descriptions and figures in the text-books being mainly taken from museum specimens removed from the body. In any case a post-mortem examination while the intussusception is still unreduced is probably of rare occurrence, and in this instance the readiness with which the invagination could be reduced and reproduced at will at the necropsy rendered the

determination of the anatomical conditions peculiarly easy. The treatment also raises several points of interest. The difficulty which had to be contended with was not that of reduction, but the tendency of the invagination to recur, to which the fatal result was ultimately due, death apparently resulting not from acute strangulation and intestinal obstruction, but from gradual exhaustion. The doubt, of course, at once arises as to whether the invagination was completely reduced. Although no trace of a tumour could be felt by the most complete examination under chloroform after the water had been injected, it is probable, I think, that the invagination was not completely reduced. Under the circumstances, it would perhaps have been better on the occurrence of the first relapse to open the abdomen, reduce the intussusception, and, if necessary, fix the cæcum to the abdominal wall. This proceeding was, indeed, discussed, but the doubt and the child's feeble condition were held to contraindicate it.

Medical Societies.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

Annual General Meeting.

THE annual general meeting of this society took place on March 1st, Dr. CHURCH, Senior Vice-President, being in the chair.

The report of the President and Council was first read. It commenced with an expression of regret at the loss which the society had sustained by the death of Sir Andrew Clark. It was the first time in the history of the society that a president had died during his term of office. The business transactions of the society had increased so much that they seriously hampered the work of the Council, and the house committee had therefore been enlarged and brought into more immediate relation with that body. The interest in the society's meetings had increased, as evidenced by the number and value of the papers presented, by the large attendance at the meetings and by the high standard of the discussions. The committee on the Climatology and Balneology of the British Isles had presented a portion of their report to the Council, and the remainder of it will be completed shortly. The committee on Suspended Animation were not yet in a position to make any report to the society. The reports of the librarians and the treasurers were received. The latter showed that the annual subscription roll was now the largest on record, there being now 500 resident, 269 non-resident, and 19 honorary Fellows—a total of 788.

A ballot was then taken for the election of officers and council for the ensuing year, and the following were declared duly elected :—President : Jonathan Hutchinson, F.R.S. Vice-Presidents : Charles John Hare, M.D., Frederick William Pavy, M.D., LL.D., F.R.S., J. Warrington Haward, and Thomas Pickering Pick. Honorary Treasurers : William Selby Church, M.D., and John Ashton Bostock, C.B. Honorary Secretaries : John Mitchell Bruce, M.D., and Rickman J. Godlee, M.S., M.B. Honorary Librarians : Samuel Jones Gee, M.D., and John Whitaker Hulke, F.R.S. Members of Council : Sidney Coupland, M.D., Frederick Thomas Roberts, M.D., Frederick Taylor, M.D., George Thin, M.D., Samuel West, M.D., William Henry Bennett, Alban Henry Griffiths Doran, Reginald Harrison, Charles Higgens, and Thomas Fitz-Patrick, M.D.

Dr. CHURCH then delivered the annual address. It began naturally with an allusion to the death of the President, and reference was made to the fact that the scheme for the construction of an Academy of Medicine would probably ere this have taken definite shape had he lived to have pushed it forward. Then followed an account by himself of Sir Andrew Clark's own boyhood, and many interesting particulars of his life were given, many of which were corrections of erroneous statements which had found their way into print. Short accounts were also given of Professor Charcot, Dr. Grailly Hewitt, Dr. W. Rhys Williams, Dr. A. T. Myers, Professor Billroth, Dr. W. Wegg (a former librarian and treasurer), Professor John Tyndall, Dr. E. J. Tilt, Dr. Cranstoun Charles, Mr. S. W. Sibley, Mr. C. E. H. Cotes, Professor Marcus Beck, Dr. W. B. Hadden, and Mr. C. D. Waite.

Votes of thanks to the retiring officers and a cordial recognition of the valuable services rendered to the society by the resident librarian, Mr. J. Y. W. MacAlister, closed the proceedings.

MEDICAL SOCIETY OF LONDON.

Annual General Meeting.—The Electrical Treatment of Infantile Paralysis.—Acute Meningitis treated by Trephining and Drainage of the Sub-arachnoid Space.

THE annual general meeting of this society was held on March 5th, Mr. FREDERICK TREVES, Vice-President, being in the chair. The report of the Council was read and showed that there was an increased average attendance of Fellows at the meeting, that the popularity of the clinical evenings continued undiminished, and that the total number of Fellows on the roll was now 764. The death-roll was a heavy one and included several well-known names. Among the Honorary Fellows who had died were Professors Charcot, Tyndall, and Billroth, whilst the names of Sir Andrew Clark, Dr. James Anderson, Dr. Walter B. Hadden, Mr. Arthur Hensman and Mr. H. Pratt Robarts (who joined the society in 1830) were among the Ordinary Fellows removed by death. Regret was expressed that the illness of the President had prevented him from taking the chair at several of the sessional meetings. The financial condition of the society was satisfactory, and a revised code of laws would be shortly circulated amongst the Fellows.

The following were elected officers of the society for the ensuing year, as we reported in our issue of last week :—President : Sir William Bartlett Dalby. Vice-Presidents : Frederick T. Roberts, M.D., Frederick Treves, Sidney Coupland, M.D., and Henry Hugh Clutton. Treasurer : Arthur Edward Durham. Librarian : William Henry Allchin, M.D. Honorary Secretaries : Charles B. Lockwood and Amand Routh, M.D. Honorary Secretary for Foreign Correspondence : Heinrich Port, M.D. Council : William Anderson, Henry Frederick Bailey, W. Mitchell Banks (Liverpool), Howard Barrett, William Henry Bennett, John Syer Bristowe, M.D., F.R.S., G. Buckston Browne, John Cahill, F. Swinford Edwards, E. Hurry Fenwick, Archibald E. Garrod, M.D., F. De Havilland Hall, M.D., Frederick W. Hewitt, M.D., Edward D. Mapother, M.D., William Marshall, M.D., William A. Meredith, H. Montague Murray, M.D., Edward J. Nix, M.D., William Pasteur, M.D., and Charles H. Ralfe, M.D.

An ordinary meeting was held later in the evening, Mr. FREDERICK TREVES, Vice-President, being in the chair.

Dr. LEWIS JONES read a paper on the Electrical Treatment of Infantile Paralysis. He said that the paper embodied his experience at the Electrical Department of St. Bartholomew's Hospital during the last three years. He had come to the general conclusion that prolonged electrical treatment of infantile paralysis would do much good in nearly all cases, provided that the children were young and that not more than three years had elapsed since the incidence of the disease, and even after that hope was not to be entirely abandoned. With regard to infantile paralysis an unfortunate and inaccurate dictum had been laid down that if the ganglion cells in the cord were destroyed their recovery must be impossible, and if they were not destroyed electrical treatment was unnecessary, because the muscles would recover of themselves. This assumption was incorrect, because some cells in the nucleus of the muscle might escape, especially if the nucleus were a large one ; and Dr. Sherrington had shown that the nuclei of origin of muscles might occupy a considerable vertical extent in the cord, and there was the possibility of neighbouring cells in the anterior horn taking up the function of those destroyed. A muscle crippled by infantile paralysis often contained active fibres, which could be cultivated by patient electrical treatment ; this happened especially with the calf muscles and with the deltoid. He had dissected a limb amputated from a woman twenty years of age who had been paralysed since childhood. The whole of the muscles were found to contain fibres which responded to the induced current. The cases presenting themselves in the out-patient department were usually of two different types. In one the muscles were thin, but the reactions were normal in quality, though deficient in quantity and in the other class the muscles were paralysed and atrophied and only gave the reaction of degeneration. The first group of cases under electrical treatment usually began to progress from the first, though they might remain in an imperfect state of recovery. In the second class of cases, though the prognosis was not so good, still it was too sweeping a statement to say that they

were incurable; and he referred to the case of a child aged three in whom paralysis commenced at the age of four months and a half. When treatment was begun there was no reaction in the muscles of either leg, but at the present time improvement had been so great that the child could walk, though awkwardly, and nearly all the muscles reacted to the induction coil. The routine treatment was as follows: the muscles were first tested as to their reactions; the girth of the limb was measured; the voluntary power of the muscles was ascertained, and any faulty position of the limb was noted. Then electrical treatment was applied twice a week by the mother herself, and the affected limbs were bathed in warm water and rubbed every night. He found that mothers could soon be taught where to place the electrodes. Improvement was shown by the better condition of the circulation in the affected limb and the gradual gain of voluntary power, the return of electrical reaction occurring later. A reaction to the induced coil was often noticed before the response to the galvanic current. As to choice between galvanism and the induced current, he thought that their relative virtues as laid down in text-books was questionable, and he considered any form of electricity of value which acted as a stimulant to living tissues. It had recently been shown that a varying current was a greater stimulant than a steady current, and he considered that the induction coil was the best for use by a nurse. Children should not be frightened by sudden shocks; the contact breaker should move smoothly and evenly; and for the lower limbs he advocated the use of an improvised electric bath, an ordinary wooden tub or foot bath being used and the plates of metal suspended at the two ends, the child being placed in the bath in the sitting position. The whole extent of the paralysed parts thus came under treatment, and the strength of the current could be easily gauged by putting the hands in at the two ends of the bath. He drew the following conclusions: (1) that it was important in every case of infantile paralysis which had lasted for more than four weeks to try electrical treatment for six months or a year, if necessary; (2) that it was exceptional for the muscles to be so completely destroyed as to have no functional fibres left; (3) that a great development of these remaining functional fibres might be gained by a persevering stimulation of them by electricity; (4) that when the electrical reaction was entirely absent or reduced to the lowest point some improvement might still be hoped for; (5) that even where the electrical reaction was not altered it was not good practice to leave the case to cure itself; (6) that the mechanical stimulation of electricity was superior to rubbing and massage, but might with advantage be combined with these; (7) that the form of electricity was of less importance than the persevering use of it; and (8) that the induction coil, used with or without a bath, was most easily arranged and was easiest for the mother or nurse to work.—Dr. PASTEUR said that he was convinced of the importance of perseverance in the electrical treatment of infantile paralysis, and he could endorse its utility in cases which appeared to be quite hopeless.—Dr. CAGNEY said that his experience of these cases was very large. He considered that there was no disease so curable but yet so neglected. As to detail, the choice of the current should be left with the operator. He believed that many cases classed as acute anterior poliomyelitis were really instances of peripheral neuritis. The effects of electricity were enhanced by the subcutaneous or intra-muscular injection of strychnine.—Mr. WALSHAM confirmed the great benefit arising from the electrical treatment of these cases. In many instances a preliminary tenotomy of the contracted muscles was necessary.—Mr. LOCKWOOD said that he had been disappointed with the cases of slight infantile paralysis in which he had been called upon to operate for the relief of equinus, and in which the electrical report was that the reactions of the muscles were good; but the results after operation were usually disappointing, for the usual wasting of muscles had ensued. Such cases were improved by the electrical treatment of an expert, but such improvement, in his experience, did not follow when it was carried out by the mother or the nurse. The ultimate nature of infantile paralysis was still undiscovered; he regarded it as a febrile disease, possibly of infective nature.—Dr. JAMES TAYLOR could not join in the chorus of congratulation as to the favourable results obtained in infantile paralysis when treated electrically. In 99 per cent. of the cases he thought there remained some serious impairment of power. Dr. Gowers had laid down the dictum that the only good done by electrical treatment depended upon the muscle-contraction caused, and it followed from this that an induced current would not do so much good as a constant current, for the former often would not give a visible contraction, whereas with a constant current that could be borne by a child such a contraction could be obtained. He doubted whether the mothers or nurses could be trusted to treat the patients successfully. He had found peripheral neuritis present in some children, but he had never seen it unassociated with anterior poliomyelitis. There was very little doubt that the disease was of an infective nature. The application of irons was common at much too early a date and was to be deprecated. Electricity, massage, and passive movements should be the combined method of treatment.—Dr. LEWIS JONES, in reply, said that he had devised the electric bath because the treatment required to be continued for months or years by comparatively unskilled persons. He thought that the majority of the cases classed as acute anterior poliomyelitis were really so, though there might be a few instances of peripheral neuritis and a few of cortical lesion. The disease was probably infective, but it was remarkable that it rarely affected several members of the same family, and a child rarely had more than one attack. He could not agree that the actual contraction of the muscle was the measure of the good done, for the electrical stimulation extended to the blood-vessels and to all the tissues, the metabolic activity of which was increased by a current too weak to produce a muscular contraction. The electricity stimulated the latent living fibres, and they developed into a fresh muscle; the process was not a re-making, so to speak, of old and spoiled fibres. Tenotomy gave the affected muscles a better chance of working. He was an advocate of the combination of gymnastics, rubbing, and electricity.

A paper was then communicated by Dr. W. W. ORD and Mr. WATERHOUSE on "A Case, diagnosed as Tubercular Meningitis, treated by Trephining and Drainage of the Subarachnoid Space; Recovery." It is published in full at p. 597 of our present issue.—Mr. WALSHAM said that he had also adopted drainage in a case of suspected tuberculous meningitis which was under the care of Dr. Tooth. He made an incision in the neck and removed the spines of some cervical vertebræ and got good drainage, the fluid spurting out with great force. The child died; but at the post-mortem examination no tuberculous meningitis was found. In another case in which he trephined over the cerebellar region for a cyst the bone was exceedingly vascular.—Dr. PASTEUR said that several cases had been treated at the Middlesex Hospital by tapping in the lumbar region and keeping in a drainage-tube. Improvement was immediate but not permanent. In another case Mr. Dunn had trephined the skull, evacuating a large quantity of fluid with temporary improvement, but the child only lived three or four days.—Mr. BATTLE said that the chances of success were much diminished where coma supervened. The great point was continuous drainage over a considerable period of time. The reposition of pieces of bone, he thought, rather complicated the case and exposed the child to much unnecessary risk.—Mr. L. BIDWELL remarked that he had made post-mortem examinations in two cases in which children had died without symptoms of meningitis at the time, but calcified tubercles were found on the vessels of the pia mater. On the other hand, in a considerable number of cases diagnosed as tuberculous meningitis no tubercle had been found post-mortem, but middle-ear disease without perforation of the membrane or other external indication of its presence.—Mr. WATERHOUSE, in reply, said that the cranium was selected as the site for trephining on experimental grounds and continuous drainage was adopted for several days. The replaced bone had grown into a fairly firm disc. He advocated this operation for chronic hydrocephalus, and, as Senn had suggested, in commencing septic meningitis multiple punctures in the skull might be made and the septic matter washed away.—Dr. W. W. ORD, in reply, said that in a number of cases the entrance to the spinal arachnoid space had been found blocked, and hence the cranial site was selected. Bacilli were not looked for in the fluid evacuated from the skull. Early continuous drainage seemed to be the treatment indicated in tuberculous meningitis.

PATHOLOGICAL SOCIETY OF LONDON.

Adjourned Discussion on Rodent Ulcer.

AN ordinary meeting of this society was held on March 6th, Dr. PAVY, President, being in the chair.

The adjourned discussion on Rodent Ulcer was resumed by Dr. KANTHACK, who said that everybody was agreed on this, that rodent ulcer was a cancerous new growth and that it was not epidermal. The epithelial elements of the derma included (*a*) hair follicles, (*b*) sebaceous follicles, and (*c*) sweat glands. Of these, the hair follicles and sebaceous follicles were anatomically and developmentally closely connected, both being ingrowths of the epidermis, which, however, become permanently differentiated, especially so in the case of the sebaceous follicles. All these glands were developed as ingrowths from the surface epithelium, which then changes its morphological and physiological character and becomes a new permanent tissue, different and diverse from the mother tissue. Once differentiated it never reverted to its old ancestral type, not even in cancerous metaplasia. One saw, for instance, that the glandular breast tissue was developed from tubular ingrowths from the surface or epidermis, which then changed their character. A carcinoma in the glandular part of the breast might resemble the fœtal tubular arrangement, but was never epidermal. Carcinoma was essentially a disease of specific cells, and though in carcinoma reversion to the fœtal type and arrangement is common, it never went beyond the final differentiation of the cell in the fœtus. Any carcinoma, therefore, which had undoubtedly grown from the rete Malpighi should be excluded from the rodent ulcers, however closely it might resemble them. The argument that the dermal elements were developed from the rete could not stand. A modern classification of carcinoma could not, he said, be based on morphological appearances. Having got so far the next question was, What elements did rodent ulcer develop from—hair follicles, sebaceous glands, or sweat glands? The changes in connexion with rodent ulcer began in the sebaceous follicles. The structures were also called glands, but were really follicles. Examining young rodent ulcers it was generally found that: (1) all around the diseased area the sebaceous follicles were present, often enlarged and distended; (2) the only structure always absent in the diseased area was the sebaceous follicle; (3) the arrangement of the cancerous masses recalled the structure and arrangement, however atypical, of an immature sebaceous follicle; in its most typical form the cancer alveoli were lapped with finger-like processes; (4) the cells in the alveoli resembled those lining the sebaceous follicle, and in rare cases they swelled and resembled the sebaceous cells occupying the lumen of the sebaceous flask; and (5) they believed to have seen, in one case at least, the earliest stage of the disease; it began in a sebaceous follicle attached to its hair-sheath.

Dr. COLCOTT FOX said that all were now agreed as to the characters of the cells which formed the growth, that the central cells usually stained badly, and that vacuolation occurred in them. Since 1879, when he read his first paper, he had cut many sections of these tumours, and had found much uniformity in type, and the varieties which had been described depended upon mere accidental surrounding circumstances. One case he had met with, which clinically was like a rodent ulcer, proved on section to be a cylindroma. It was almost impossible to determine the exact point of origin of these growths.

Mr. W. G. SPENCER said that the essential difference between rodent ulcer and epithelioma was the power of resistance of the tissues to the extension of the growth. In rodent ulcer there was usually no previous family history of epithelial cancer and people affected with rodent ulcer had a high resistance of tissue to downward growth of epithelium. In lupus of the face there was a similarly high power of resistance on the part of the tissues to the penetration of the tubercle bacillus. So also in epithelial cysts of the fingers, and an attentive examination of the tissues outside the growth was therefore necessary.

Dr. NORMAN WALKER said that the field of discussion had become much narrowed and opinion seemed now to be unanimous that rodent ulcer was a distinct entity recognisable by the microscope, and the clinical history and the histological features usually went together to confirm this. As to the seat of origin of the growth it caused as a rule comparatively little irritation of the tissues; there was nothing to be compared to the irritation seen in epithelioma. Coming to the general arguments, he did not believe that the growth arose in the epidermis, which produced squamous epithelioma; as to the sebaceous glands, it might exceptionally arise in those, though the "paraffin cancer" which commenced in the sebaceous glands was a squamous epithelioma, and he had observed atrophy of the sebaceous glands on the approach of the rodent ulcer growth. The small slowly growing cells of rodent ulcer were like the cells of sweat ducts, and there was no tendency to further development in them, such as keratisation; the cells tended to arrange themselves in pseudo-ducts, forming a glandular type of tumour. Though metastasis had been said never to occur, yet cases were on record. He showed one specimen in which he believed that there was a tendency for epithelioma to develop on the top of rodent ulcer. The "crateriform ulcer" of Hutchinson appeared to be a squamous epithelioma beginning in the sweat glands; the history was too long clinically for rodent ulcer. He thought that a developmental cause might be at the bottom of the selection of the site of rodent ulcer. It commenced often just at the border of the nose—a situation where the lacrymal gland was developed from epidermis. He exhibited with the optical lantern a number of photographs to illustrate his views.

Dr. RUBERT BOYCE showed a series of photographs to support the view that rodent ulcer commenced in sebaceous glands. In some very early sections he showed that the growth began in the place of the sebaceous follicle in the corium immediately beneath the epidermis and quite above the region of the sweat glands. Further sections showed the plexiform arrangement of the growth. As exceptional instances he showed the "endotheliomatous" type of rodent ulcer and a rodent which appeared to arise from the deeper layers of the epidermis. He likewise exhibited a picture of a benign tumour arising in a sebaceous follicle, of molluscum contagiosum, of a small wart containing nests, and of a small epithelioma from the back of the hand which grew underneath the skin and was evidently a malignant hair follicle tumour. He said that tumours springing from the rete mucosum and from the hair follicle developed characters like those of the parent tissue; and in rodent ulcer, in the large majority of cases, one had to deal with a tumour arising superficially close to the mouth of a sebaceous gland at its junction with a hair follicle. It evidently arose from sebaceous glands which were not normal and were perhaps faulty from congenital defect.

Mr. H. B. ROBINSON referred to the rodent growth without ulceration—the solid mass of small columnar-celled growth—and said that in the neighbourhood of these formations he had often noted a marked enlargement of the sebaceous glands. The growths were often remarkably superficial, and the hair follicles at the periphery showed multiplication of the cells of the root sheath. He had seen at least one which appeared to be connected with the rete mucosum. Two years ago he examined a section from a growth from beneath the eyelid which showed a marked difference from ordinary rodent ulcer. Eighteen months later a secondary growth appeared in the preauricular gland. Microscopically it resembled a normal sebaceous gland, and was, perhaps, a true sebaceous carcinoma, which suggested that rodent ulcer was something else.

Mr. CECIL BEADLES mentioned the case of a man aged forty-six who died from typical rodent ulcer of the face and secondary deposit was found in a lymphatic gland. He was of opinion that rodent ulcer started in the duct of a sebaceous gland close to its entrance into the root sheath of the hair follicle.

Dr. PAYNE said that rodent ulcer was undoubtedly a gland cancer of the skin. Years ago he was inclined to think it was connected with the hair sheath; the cells did not undergo horny change, and there was not much tendency to hyperplasia. It was commonest at the upper part of the face and was not unknown on the chin or upper lip. He did not know of a single case on the lower lip. One had also been reported on the middle of the back. These were all essentially sebaceous areas—the areas which suffered from common acne, the latter being an affection as much of imperfectly developed hairs as of sebaceous glands. Rodent ulcer, if a gland cancer, probably began in an imperfectly developed gland.

Dr. MUIR EVANS said that there were certain common sites of rodent ulcer; the inner canthus greatly predominated, then the superior maxillary area, the ear and outer canthus, behind the ear and on the lower jaw. To find out why these particular areas were affected one must remember that in these situations in certain animals there were found large developments of sebaceous and sweat glands, which were known as "lacrymal pits or sinuses," "maxillary pits," or "tear pits." He had examined them in sheep, goats, deer, and camels, and they were often associated with much pigmentation of the surrounding epithelium. The possible relation of

these gland collections to new growths was interesting, and it explained the presence of pigment in some of them.

Mr. PAUL, in reply, defended the use of the term "precancerous." The reason why the lymphatic glands escaped infection was possibly because the slow and plastic changes induced by the growth blocked the surrounding lymphatics. The precise site of origin of the growth could only be studied by means of very early sections.

Mr. BOWLBY, in reply, said that one case in his series which clinically was a rodent ulcer showed groups of keratinous cells. He had met with no instances on the limbs.

The following card specimens were shown:

Mr. CECIL BEADLES: (1) Cystic Kidneys; (2) Cholesterine Cyst of Kidney; (3) False Bursæ from Arm.

OTHER METROPOLITAN MEDICAL SOCIETIES.

HARVEIAN SOCIETY—A meeting of this society was held on Thursday, March 1st, Mr. GEORGE EASTES, President, being in the chair.—Dr. SILK read a paper on the Uses and Misuses of Anæsthetics. After alluding to the fact that it was in 1844 that Mr. Horace Wells first used nitrous oxide gas for producing anæsthesia, and that the introduction of ether and chloroform followed soon afterwards, Dr. Silk said he thought that in the present year and in the Harveian Society it was particularly appropriate that the names of Wells, Morton, and Simpson should be remembered. With regard to the uses of anæsthetics he thought that itwould be universally conceded that these were (1) relief of pain, (2) diminution of shock, and (3) that they had contributed more than anything else to the advances which had recently been made in the surgical art. With reference to their misuses, Dr. Silk considered that there were grounds for believing in the growing tendency to the formation of a "chloroform habit"; that even if anæsthetics were not actually given too frequently, at any rate they were often given without sufficient weight being attached to the risks incurred. He could not agree with the conclusion arrived at at the end of 1889 by the Hyderabad Commission that "chloroform anæsthesia is free from risk," but thought, on the contrary, that as it was an unnatural process more or less danger attached to all forms of anæsthesia and that it amounted to a misuse to administer a more potent when a less powerful drug would suffice. He also drew attention to the fact that in the years 1888 and 1889 the total death-rates from anæsthetics in England were 33 and 36 respectively, the chloroform death-rate for each year being 32. whereas in the two following years the totals went up to 42 and 69, and the chloroform death-rates to 36 and 62. Dr. Silk thought, too, that inattention and overdosage were undoubted misuses, and considered dilatory induction and under-anæsthetisation to be nearly as bad errors of maladministration, and said that the existence of these troubles afforded a powerful argument in favour of the recognition of the systematic teaching of anæsthetics as a necessary part of the medical curriculum. He agreed with Mr. Christopher Heath in deprecating "the exaggerated slowness of modern surgery," but again disagreed with the Hyderabad Commission in the pronouncement that "chloroform and shock were incompatibles." He thought, on the contrary, that shock was seldom completely abolished under any anæsthetic or in any stage of narcosis, though much might be done to mitigate the evil by subjecting the patient to a careful preparatory regimen, taking care not to underfeed him, and if necessary to give a nutrient enema just beforehand.—The PRESIDENT remarked that the severer degrees of anæsthesia were accompanied by danger, and some anæsthetics notoriously more so than others. He arranged them in an ascending series thus: (1) local anæsthesia, including refrigeration by ice, chlor-ethyl, or ether spray, and cocaine; (2) nitrous oxide gas; (3) A.C.E. mixture; (4) ether; and (5) chloroform. He considered it a misuse to employ an anæsthetic of the more dangerous description where one less risky would suffice; again, it was a misuse to produce a deeper degree of anæsthesia than was required for the operation on hand; and, lastly, it was a misuse to continue the anæsthesia longer than was absolutely necessary.—Mr. T. R. ATKINSON insisted on the importance of students receiving adequate instruction at the London hospitals in giving anæsthetics. Patients heard so much about the advantages of anæsthetics that general practitioners found that they insisted upon being anæsthetised for very trifling operations, even when they could not pay for the services of an expert. Rest in bed for a day or two sometimes appeared serviceable.—Mr. RICKARD LLOYD emphasised the increased safety obtained by an administrator using an anæsthetic and method with which he is familiar.—Dr. F. W. HEWITT said that Dr. Silk's most interesting paper admitted of much discussion. There were, however, two side issues to the subject which appeared to him to call for a few remarks. He referred to the question of surgical shock during or after the use of anæsthetics, and to the proper preparation of a patient before anæsthesia was induced. As to the question of shock, he had seen all grades of surgical shock during anæsthesia, and was by no means prepared to say that such conditions could be avoided by keeping the patient very profoundly anæsthetised. He had, indeed, met with numerous cases in which, during operations upon exhausted and anæmic subjects, a light anæsthesia seemed to him to be attended by less disturbance of the circulatory and respiratory functions than a moderately deep or deep anæsthesia. Patients who were in a bad state of health at the time of operation were fortunately rather tolerant than otherwise of a light anæsthesia. He did not mean by this that the patient should be only half anæsthetised, but rather that it was possible to secure tranquility, freedom from reflex movement, and a good circulation with remarkably little of the anæsthetic, the conjunctiva usually remaining sensitive throughout. He now came to the second point—viz., the preparation of the patient for the administration—and here he fully agreed with Mr. Woodhouse Braine that it was a wrong practice to give patients any food by the stomach for at least several hours beforehand. He had repeatedly come across cases, especially in children, in which milk and other food which had been given five and six hours before the administration had not been assimilated. He contended that there was less risk of depression from giving ether after a fast of five or six hours than from the subsequent nausea and vomiting which might occur had food been taken three hours before; moreover, if food was present in the stomach the anæsthetist might have considerable difficulty in securing true anæsthesia. He had found in such cases that very large doses of the anæsthetic were often needed, that repeated swallowing with temporarily suspended breathing was common, and that delay and difficulty arose which would certainly not have shown themselves had the stomach been empty. He fully admitted that with exhausted subjects this abstinence from food was undesirable; but even in these cases it was often possible to administer nourishment by the rectum, and so to avoid vomiting and its after-depression. With all the other points raised by Dr. Silk he fully concurred.—Dr. H. F. LANCASTER, referring to the remarks of the last speaker, said we had sufficient facts to prove the risks of commencing an operation before the superficial reflexes were abolished, and that it should be a constant rule to anæsthetise the patient fully prior to any incision being made. He also thought that, while more prolonged fasting beforehand was no disadvantage in etherisation, as had been said, it might be less favourable when chloroform was used and the patient exhausted.—Mr. HAZEL said that he frequently gave chloroform to his patients during labour, and he had never seen any ill effects from its administration. It was his experience that women were less able to bear the pains of labour now than formerly, and therefore required the use of an anæsthetic.—Mr. G. EVERITT NORTON said he quite agreed with Dr. Silk in his remark that the long induction of anæsthesia was to be avoided.—Dr. ROBERT BOXALL remarked that the frequent use of anæsthetics might lead to "chloroform habit," and quoted some cases in support of this view.—Mr. WOODHOUSE BRAINE also took part in the discussion.—In reply, Dr. SILK said that from the point of view of safety he should be inclined to place the A.C.E. mixture rather below ether, but above chloroform itself. He quite agreed that over-feeding, especially with ether, was impolitic, and he thought that by the use of enemata this might be avoided without actually starving the patient. He strongly objected to the plan in vogue at the dental hospitals of allowing the administration of nitrous oxide gas to be a source of pecuniary benefit to the institutions. Mr. Atkinson's opinion as a general practitioner that systematic teaching in anæsthetics was really much wanted was a most valuable confirmation of what Dr. Silk had for some years been insisting on, and he hoped that the time was not far distant when such teaching would be properly included in the curriculum. With regard to the use of chloroform in labour, Dr. Silk thought that

there might be some truth in the theory that the immunity enjoyed by parturient women was partly due to the slight cardiac hypertrophy said to exist at that period. In the more serious operations of midwifery he would be inclined to treat such women as ordinary patients and give them ether if possible. Dr. Silk did not agree with the administration of alcohol by the mouth immediately before the operation.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.—A meeting of this society was held on Feb. 19th, Dr. WOODFORDE, President, being in the chair. A discussion on Vaccination and the Laws relating therefo was opened by Dr. SEATON, who expressed his belief that any changes in the law that might come from the report of the Royal Commission would be based on the evidence and recommendations of Mr. Stansfeld, who, recognising the "overwhelming balance of medical opinion" in favour of vaccination, advocated "moderate compulsion" (whatever that might be) and a decentralisation of control. Mr. Stansfeld did not discuss isolation and the influence of hospitals, on which he, Dr. Seaton, held decided opinions, being convinced that the benefits were enormous and the dangers had been grossly exaggerated. Mr. Stansfeld's recommendations, with which he entirely concurred, were (1) to bring the administrative and executive more into touch, and by reducing the areas to render the control more efficient. This would be attained by transferring the powers now exercised by the Local Government Board to the councils in each county or county borough, and the supervision to their medical officers of health, the councils being in their turn responsible to the Local Government Board. Dr. Seaton would also substitute the sanitary authority for the board of guardians as the vaccination authority. The guardians had done their duty well, but they were hampered by the traditional parsimony of the Poor-law system, and the suggested association with pauperism tended more than anything to foster a repugnance towards vaccination among the poor. He was not very sanguine as to the results of the proposed decentralisation, though good in principle, unless the county councils should display considerably greater interest in public health than they had hitherto, very few having appointed county medical officers of health or even availed themselves of the advice of officers whom they had already at hand. During the epidemic at Nottingham the town council had, indeed, given him *carte blanche* and voted £500 for the extension of vaccination; but if several of the large towns in different parts of the country would open stations for the supply of animal as well as human lymph, like the Government station in Lamb's Conduit-street, it would be very much easier for local authorities to stamp out outbreaks. It would be at such times that the advantages of decentralisation would be most felt and it might assist in eliciting a popular interest in this and kindred questions.—Dr. PARKES agreed in the necessity of popularising vaccination, but did not believe it would be possible until compulsion was abolished. He admitted that in the days of gratuitous and optional vaccination the mortality from small-pox was higher than it was now, but he would trust to the spread of education, and thought that more vaccinations might be performed henceforth without compulsion than were done at present with it. Certainly the taint of pauperism should be removed.—Dr. SYKES could on no account give up compulsion, and while strongly urging the transfer of vaccination from the Poor-law to the sanitary authorities he doubted whether anything would be gained by devolution from the Local Government Board to the County Council. Popularly elected bodies would not voluntarily spend money or take action except in the presence of an epidemic, when it was impossible to carry out vaccination efficiently. Private practitioners should be compelled to state the number or area of vesicles, and mis-statement should be made penal.—Dr. WIGHTWICK maintained that compulsion was a failure when 20 per cent. of all the children in a workhouse school and 40 per cent. of the youngest were found on admission to be unvaccinated. Vaccination might be popularised if persuasion was substituted for compulsion. The operation should be explained and treated as an important one, to be performed with strict antiseptic precautions by competent men with fixed but liberal salaries.—Mr. VACHER'S experience was very different. With an active inspector he found that, after deducting deaths and postponements, not more than 2 per cent. of the infants in Birkenhead who survived three months remained unvaccinated, though he admitted that many private vaccinations were utterly insufficient. The fear of syphilitic infection not being groundless, arrangements should be made for completely stripping infant vaccinifers, and he had always found farmers ready to lend calves for the purpose, the animals being returned in three weeks in no way deteriorated and fatter. As to tubercle he believed that the use of goats, which were almost insusceptible to tubercle, might be tried.—Dr. WILLOUGHBY pointed out several defects in the form of certificate, and urged that in Schedule C the number of insertions and of vesicles raised should be stated thus: "Successfully vaccinated in [ ] of [ ] insertions," with a note: "N.B. The insertions must be three or more in number, and three good vesicles are required to constitute *sufficient* vaccination. Unless three be obtained the child must be brought again within [one, two or three] years." The vaccinator should be identified, as in other certificates, by his address and registered qualifications, and all alleged cases of insusceptibility should be referred to a public vaccinator for verification. He doubted the existence of such a condition, and Dr. Cory had not met with it once among the 15 000 persons he had vaccinated some years ago, yet there were men who filled in Schedule B in a large percentage of their cases. It was at present possible for a man, with the connivance of the parents, to go through the form of vaccination with pure water or infinitesimally diluted lymph three times, and by signing Schedule B to leave the child unprotected; but compulsory revaccination about puberty or at the termination of school attendance, as carried out in Germany, was scarcely less necessary. It was the immunity enjoyed by Frankfort in 1871–72, when the other German towns were decimated by small-pox, introduced by the French prisoners of war, that led to the extension in 1874 to the whole empire of the law that had long been in force in Frankfort and Nassau. Since then, though surrounded by badly vaccinated countries, where epidemics of small-pox recurred every few years, the deaths in any German town had rarely, if ever, exceeded units, and for the last ten years the cases had been, without exception, of foreign origin, either aliens recently arrived or Germans who, born before the year 1860, had not come under the Act of 1874, who contracted the disease from the former or while travelling abroad, and among the secondary cases a few infants not yet vaccinated. Were it not for the free communication with France, Italy, Austria, and Russia small-pox would already have been completely stamped out through the entire empire, with its forty-five millions of people. If we could not otherwise learn wisdom, he would welcome such an experience as that of Germany in 1871–72.—Dr. LITTLEJOHN, jun., feared that even that would not suffice. The people of Sheffield had learned nothing from the great epidemic there, and he had the greatest difficulty in enforcing vaccination.—After some remarks by Dr. S. DAVIES and Mr. E. HAUGHTON (a visitor), Dr. SEATON replied. With regard to compulsion, which he did not discuss in view of the near issue of the report of the Royal Commission, he would now say that, while advocating compulsory vaccination, he had no hope of seeing revaccination made obligatory except when notification revealed a case of small-pox in a house or factory.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—The PRESIDENT, Dr. DONALD HOOD, occupied the chair at a meeting of this society on March 2nd.—Mr. NEVILLE WOOD reported a case of Hæmophilia. The patient was a male child aged four months, who had shown symptoms of the disease since he was three days old. It began with severe epistaxis; he had also had melæna twice and intra-muscular hæmorrhages. The subcutaneous swellings had been as large as Tangerine oranges, but there had been no certain intra-articular hæmorrhage. The cause was probably slight traumatism in a subject predisposed to hæmophilia. The father alone of his progenitors or relatives was a bleeder.—Mr. S. PAGET brought under notice a case of Myositis Ossificans in a boy aged five. He quoted other published cases and drew attention to the great-toe deformity and the history of rheumatism in the grand-parents previously described.—Mr. KEETLEY thought the condition was secondary to some inflammatory action and was a specific disease.—Mr. BIDWELL related a case of Alveolar Cyst in connexion with the Stump of an Upper Bicuspid.—Dr. BENNETT quoted a case somewhat similar.—Dr. MORGAN DOCKRELL instanced two cases of Psoriasis which had been successfully treated with thyroid extract, and Mr. STEER and Dr. GARDNER related cases of Myxœdema which were effectually treated by the same remedy. The merits of the treatment were discussed by several members of the society.—Dr. CHAPMAN submitted

the notes of a case of Hæmoptosis in a patient suffering from Mitral Stenosis.—Finally, Dr. ABRAHAM read the report of a case of Lupus relapsing three years after successful treatment with tuberculin.

PROVINCIAL MEDICAL SOCIETIES.

EDINBURGH MEDICO-CHIRURGICAL SOCIETY.

Continuation of the Discussion on Intra-cranial Surgery.

On the second night of the discussion cases bearing upon Intra-cranial Surgery were shown by Mr. Annandale, Mr. Cathcart, Dr. McBride. Dr. McKenzie Johnston, Mr. MacGillivray, Mr. Miles for Mr. Miller, Dr. W. Stewart, Dr. McPherson, Dr. Gibson for Dr. Felkin, Mr. Caird, and Dr. James.—Mr. JOHN DUNCAN opened the discussion. He said that intra-cranial operations might be divided into aseptic and septic ones. In the aseptic cases there were many subjects on which they still desired knowledge. One of these was the localisation of function, and on this point he could confirm the observations made as to the apparent uselessness of the frontal lobes. A boy, as the result of a kick on the forehead, had lost a dessertspoonful of brain tissue and had had hernia cerebri for six months, which ultimately closed. Three years later he died of phthisis, and during all that time he was regarded as being perfectly well, so far as his mental functions were concerned. They also wanted information as to the nature of nerve action and of its excitants and depressants. Experiments had to a certain extent shown the relationship of various electrical currents to nerve action, but their pathological knowledge was still exceedingly imperfect. Speaking generally, it might be said that an excess of pressure diminished nerve action and that hyperæmia and irritative conditions increased it. In this relation he would point out that epilepsy was not to be looked upon as a disease of pressure but of irritation. It might be connected with surgical injuries, but not in the way of direct pressure. The pressure only set up a hyperæmic and diseased condition of brain tissue, which was likely to produce epilepsy. In this connexion he referred to a child suffering from severe epileptic fits. He trephined and found that there was a large hole nearly in the centre of the forehead, through which the dura mater was tightly adherent to the pericranium; nothing else was found. The dura mater was opened and the arachnoid seen, but there was nothing wrong with it. As a result of the operation there was great diminution of the fits, and for many months an entire cessation of them. After the patient went home they returned, but again diminished on readmission to hospital. There were so many factors bearing upon these epileptic cases that the investigation of the subject was attended with great difficulty. The centre of irritation was frequently not in the brain at all. He had seen a case of epilepsy in which the removal of a stone from the bladder was followed by extraordinary amelioration, and they all knew of cases in which the removal of a long prepuce had cured convulsions. Great benefit was derived from the removal of any well-defined source of irritation, but he did not regard the mere trephining of the skull with a vague idea of relieving pressure as an operation likely to be followed by success. Another point on which information was required was the physics of the brain. They knew very little of the conditions under which the tension of the cerebro-spinal fluid was produced and maintained. There might be in the brain two kinds of compression, a general and a local. In illustration of this he referred to a case brought into hospital comatose, with a small cut in the temporal region; he trephined at this point and only found a little contusion of the membranes. The patient died, and there was found extensive hæmorrhage on the opposite side covering the whole motor area and much more. Another case had hemiplegia following a depressed fracture, and in it removal of the depressed bone successfully relieved the paralytic condition. In the one case there was general compression, in the other local pressure without any general effect. There were many complex conditions to be taken into account in considering compression. There must be in the brain a slow and a rapid adjustment of tension. The most important factor was the cerebro-spinal fluid. In connexion with its expression the relationship to the cord and the elasticity of its membranes were of importance. There was seldom any effect upon the cord by increase of pressure in the brain. The effect of sudden loss of fluid was seen in accidental rupture of, or surgical operations on, spina bifida. There might be sudden death with convulsions if the fluid was drained right away. In such cases there could also be shown exceedingly well the adjustments to pressure that were possible, for the fluid in a spina bifida of considerable size could be squeezed into the general cavity without producing the slightest effect. It was due to the immense power of secretion and absorption present. He had had a case of fracture of the spine in which for three weeks there was a daily drain of six or eight ounces of fluid. The effects of pathological increase of pressure were more difficult to understand, it was so constantly associated with inflammatory conditions. It was of great importance to consider what kept up the pressure; was the increase of fluid due to an evanescent or a persistent cause? Or was it possibly due to a cause kept up by increased tension? To drain a hydrocele for two or three days would cure it; and along with Dr. Affleck he had with success put a glass tube for only a few days in the tuberculous abdomen of children. The tension in these cases might produce a hyperæmia which would subside when the pressure was relieved. It was justifiable, he thought, to operate in cases of excessive intra-cranial pressure, even in tuberculous meningitis, in general paralysis possibly, and in hydrocephalus if the conditions did not interfere. It was quite clear that they must drain for a certain time. In hydrocephalus the large size of the osseous case made it exceedingly doubtful whether they could benefit the disease much by operation. In other cases there were various conditions that made it difficult to keep up the drainage in an efficient way. He had found that it was exceedingly difficult to maintain the issue of cerebro-spinal fluid from the surface of the cerebrum for more than twenty-four hours. Exudation of lymph took place, which cut off the flow. Various suggestions had been made to overcome this difficulty, but none of them were very satisfactory. There were two classes of cases, the irritative and the compressive. In the irritative, of which epilepsy was the type, it was necessary to remove the focus of irritative. In the compressive the cause of pressure must be removed, and, if possible, the operation must be over the seat of the disease.—Dr. BYROM BRAMWELL alluded to the cerebral cases which he had seen and the very small percentage of cases in which operation was feasible or in which he was prepared to recommend it. He thought that in tuberculous meningitis, where ordinary treatment was so unsuccessful, it might be desirable to trephine.—Dr. BATTY TUKE said that nothing struck him more on the first night of that discussion than that most of the speakers accepted encephalic fluid pressure as a postulate—a proposition to be accepted without proof. He continued as follows: "It appears to me that the existence of such pressure is the x in the equation presented in every head case in which we are sure that there is no solid pressure or pressure from blood or pus. It is true that in the working out of such equations certain of the factors are undetermined, and the result may be a mere empirical expression. Still the attempt generally brings out important matter bearing on the case. We all know the mistake which arose from the acceptance of the theory that the skull is a 'practically closed sac.' This we now know is not the fact, and we also know that considerable variations in its blood-supply may occur, and that such variations are provided for by the ebb and flow of the cerebro-spinal fluid. Further, we have the strongest reasons for believing that exudate may be poured out more rapidly than it can be removed by the lymphatic paths at the base and in the spinal column. In the class of cases in which I am responsible for advising trephining—viz., general paralytics—such pressure has been well marked. In the seven cases I have seen operated on there was considerable bulging of the dura mater into the trephine hole on removal of the disc; in four early cases it filled the hole as fully as a cone can. Dr. Macpherson can speak for his cases; I shall restrict myself to those four in which the symptoms had not existed for more than two months. In all these the arachno-pia were found to be distinctly inflamed, the difference between the healthy and inflamed conditions being as obvious in this membrane as they would have been in a healthy and an inflamed conjunctiva. Mr. John Duncan, who operated in three of these cases, can confirm this statement. Considerable amounts of fluid escaped from the subdural space and from the pial space. Having thus imported the three factors—an inflamed serous membrane, large quantities of exudative fluid, and bulging of the membranes—I submit that the x in my equation comes out as fluid pressure. In the case of any other organ this would be held

as conclusive. In every case I have seen or read of, in which trephining was performed for the relief of this condition, improvement was manifest. In the last case Mr. Duncan operated on, the patient recovered. He was the subject of the congeries of symptoms which is generally spoken of as general paralysis of the insane, except that he had no grandiose delusions. Without going into particulars of the case it may be stated that after six weeks all his symptoms, mental and physical, had disappeared, he insisted on being discharged from the Royal Infirmary and went home. There he after nearly three months took to drinking and died in a fit of delirium tremens. For all scientific purposes this was a recovery. I must allude to one of Dr. Claye Shaw's cases, in which all the symptoms were present, large delusions included. After operation all the symptoms abated entirely, except slight dulness, to such an extent that the man obtained employment as a ticket collector on the railway. This place he could not retain, on account of the dulness. Now I ask you to consider, is it not a most important fact brought out by the results of these operations, whether we regard it from a physiological, pathological, or psychological point of view, that such well-defined mental symptoms as the large delusions of general paralysis and its paretic symptoms can be removed by draining the membranes? It is to my mind not only an interesting but a most important preliminary observation which has been determined by this surgical proceeding. That it has not been fully successful suggests that we have not as yet perfected the operation. What we want is slow and gradual drainage. It is for the surgeon to devise an operation by which fluid can be withdrawn from a dependent position in the drainage system—say from the cisterna cerebro-medullaris. I hence suggested laminectomy in the lumbar region, but I am told that the chances of sepsis are there great. If the skull is attacked one opening is sufficient. General paralysis is, in my opinion, merely a generic term applied to a congeries of symptoms produced by various pathological agencies. In cases in which we have reason to believe that it is due to inflammatory processes the results of my operations have been so distinctly encouraging that I hold it is our duty to resort to operative measures and to seek to improve methods so as to bring about more permanent drainage. With all the evidence before us we cannot sit down with folded hands when confronted with this condition and remain content with a *non possumus*. Dr. IRELAND did not think that general paralysis would be successfully treated by trephining. With regard to microcephalus, he had lately gone over the recorded cases that had been operated on, and he thought it was too much to maintain that the treatment was attended with fair success.—Dr. CLOUSTON had no objections to surgeons doing any kind of operation in such an absolutely hopeless disease as general paralysis; but from his views of the essential nature of the disease he was most sceptical as to any possible cure from any kind of operation. He did not agree that the two cases reported by Dr. Clay Shaw and Dr. Batty Tuke were in reality cures, even if they were cases of general paralysis at all. In the diagnosis of early cases they were all apt to make mistakes, and he found that in 2 per cent. of cases a wrong diagnosis was made. Certain syphilitic and alcoholic cases were often regarded for a time as general paralysis. With regard to the improvements recorded they were not more than was seen in ordinary cases left to themselves. Short improvements were observed in a great many cases. At Morningside he discharged as recovered many cases of general paralysis. The symptoms so disappeared that the patients were regarded as not insane; but they invariably came back in a short time. He was absolutely sceptical as to the existence of excessive pressure, except, perhaps, the kind of pressure that hyperæmia produced. There was one class of case which could be cured if they could make the diagnosis. He had seen a number of cases in which spiculæ of bone were found at the necropsy attached to the falx or the arachnoid, or the dura mater. They occurred in cases of great intensity, cases of mental epilepsy. None of them had convulsions. He had no doubt that the irritation of the sharp spiculæ caused the irritation of the mental centres. If they could diagnose these spiculæ and remove them they would probably cure the insanity. He thought that in certain otherwise incurable cases of mental disease trephining might be the best means of counter-irritation that could be applied. He had recently had an interesting case which had been trephined. There was a history of a fall, and the patient had had syphilis. Many of his symptoms were those of general paralysis. He also had attacks of convulsions, which always began in the forefinger of the right hand. After the operation the patient became more maniacal, and he died within a week. In order to make the diagnosis certain in such cases, when operated upon he recommended that a small piece of the cortex should be removed and examined. This had been done in this instance, and the diagnosis of general paralysis was confirmed. —Professor CHIENE, who opened the discussion of the third evening, said that in 1890 he had taken part in a similar discussion in America, and what he said then was fully reported in the ninth volume of the Transactions of the American Surgical Association. He briefly stated the views which he at present held in regard to intra-cranial operations. He had had experience in epilepsy, inflammation, abscess, tumour, and hæmorrhage. In epilepsy he had only seen marked good arise in cases of traumatic origin, and particularly in those in which the motor area was involved. In tumours the relief had only been temporary, but he had never had a distinctly encapsuled tumour. In abscess he had dealt with frontal and temporo-sphenoidal abscess. In frontal abscess he had been misled by the absence of all symptoms, and had not operated when he should have done. He had had no success in operation for septic thrombosis of the lateral sinus. An irregular temperature was the best diagnostic point in these cases. He had explored the cerebellum, but had never found an abscess there. In non-traumatic cases of intra-cranial hæmorrhage, with coma, he believed the skull should be opened to relieve pressure, and thus give temporary relief at least, and he referred to Dr. Smart's case, in which the patient's life was saved by the operation. In traumatic hæmorrhage he impressed on the society the necessity of carefully watching the first symptoms that arise after the patient passes out of the state of concussion as an indication of the seat of the hæmorrhage. He had not had a successful case of trephining for inflammatory compression. He was not a believer in depressed bone as a cause of persistent compression. He then described a simple method which he had worked out with Mr. Stiles for fixing the different lobes of the brain to the surface.—Mr. STILES gave a demonstration of Kocher's method for localisation of the various surface convolutions. — Mr. CATHCART had for some time held that it was very important they should have marks on the natural skull, and not require to take measurements and draw angles. Professor Chiene's method and that of Kocher's were difficult to recollect. The method he himself had worked out had only one measurement, and it was sufficiently accurate, for he had verified the results upon Professor Cunningham's skulls. The measurement he took was that required to find the upper end of the fissure of Rolando, which, according to Thane, was half an inch behind the mid-point of a line extending from the glabellum to the external occipital protuberance. The other points he took were the external angular process of the frontal bone and the zygomatic tubercle. A line drawn from half an inch behind the mid-point to the zygomatic tubercle gave the position of the fissure of Rolando. A verticle line from the zygomatic tubercle struck the fissure of Sylvius at the point where the vertical branch began to show on the surface. Starting with the external angular process of the frontal bone the first part of the fissure of Sylvius ran horizontally backwards parallel to the zygoma as far as the mastoid process. Behind that its position was somewhat variable. The parallel fissure could be marked out parallel to the fissure of Sylvius and an inch below it. The fissure of the frontal lobe ran at equal distances a little in front of the fissure of Rolando. By this method, which was easily remembered, they could get sufficiently accurately the position of the main fissures, and other points on the surface of the brain could also be easily determined. The lower part of the temporo-sphenoidal lobe ran parallel to the zygomatic arch. That line continued backwards, hit the upper part of the lateral sinus. The position of the middle meningeal artery very nearly corresponded to the place where the vertical portion of the fissure of Sylvius began. Mr. Cathcart also showed preparations illustrating points in the surgical anatomy of the cranium, and also showed some pathological specimens.—Mr. CAIRD said the first circumstance that warranted surgical interference was when the patient's condition was going from bad to worse. The second was where the condition, though not of necessity fatal, was one that might be improved. He referred to two cases on which he had operated which bore upon these points.

With regard to cerebral localisation he thought the best method was to take a spot an inch and a half behind the mid-point and to make with that an angle of sixty degrees. This gave the position of the fissure of Rolando and from that all the rest could be painted in. In epilepsy the best results were obtained in cases in which there had been traumatism. When a special area was affected as good results were obtained by nerve stretching. He mentioned the case of a boy who suffered from infantile hemiplegia. He also had fits ushered in by an aura in one hand. He (Mr. Caird) trephined over the corresponding area. When it was electrolysed there was at first no result, but on a second application the muscles supplied by the ulnar nerve were brought into action. A piece of brain was excised and the patient had a few fits afterwards which were chiefly on the opposite side.—Mr. COTTERILL did not agree with the proposition that they should not trephine in cases of epilepsy which were not traumatic. In cases of non-traumatic epilepsy with distinct involvement of the Rolandic area he thought they should trephine. Certain hæmorrhages early in life led to cyst formation, or if a sclerosed portion of brain was removed fits might be cured, though the paralysis was not altered. Where there was no paralysis good might follow trephining. He thought he must have misunderstood Professor Chiene when he said that he did not trephine in depressed fracture because the bone caused compression. He thought trephining relieved symptoms evidently produced by depressed bone. With regard to drainage, his experience was that in some cases where there were marked symptoms of intra-cranial pressure not a drop of fluid was obtained on cutting through the dura mater. This occurred in a case on which he had recently operated. It was not impossible that the best way to overcome this difficulty would be to tap the lateral ventricles. This he had done in the case referred to. On inserting the trocar into the anterior end of the ventricle there was a spurt of fluid, and about three ounces were removed. He then showed instruments he had had made for him for the purpose of throwing down a large flap of bone from the cranium, retaining its connexion with the skin and pericranium, the purpose of which was to lift a large piece of bone without destroying its vitality.—Mr. A. G. MILLER gave notes of a case following middle-ear disease, in which at the necropsy the lateral sinus was converted into a fibrous cord.—Mr. HODSDON showed specimens of abscess of the brain and one from a case of sinus phlebitis. He asked the opinion of surgeons as to the desirability of tying the internal jugular in cases of sinus phlebitis.—Dr. GEORGE MACKAY emphasised the fact that trephining for intra-cranial tumours relieved the optic neuritis. In syphilitic cases the tendency to optic neuritis was very great. The question was as to how long they should wait. He agreed with Mr. Horsley that six weeks' trial of iodide of potassium was long enough, except in tuberculous cases, when it should be two months.—Dr. DAVID WALLACE said that in operating for epilepsy it was sometimes said that surgeons produced conditions similar to those for the removal of which they operated, as cicatrices. He had removed portions of the cortex in four different cases of epilepsy, and one of his cases had been attended with remarkable success.—Professor ANNANDALE replied on the discussion, and congratulated the society on the amount of material which had been brought forward.

BRIGHTON AND SUSSEX MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on March 1st, Mr. WILLOUGHBY FURNER, F R.C.S. (Vice-President), being in the chair.—Mr. H. H. TAYLOR showed a man aged forty-five suffering from a Tumour of the Pons. The symptoms began two years ago with headache and vomiting. When first seen, twelve months ago, there was almost complete paralysis of the left third nerve, but the fourth at this time was not affected. There was slight affection of the speech. The whole of the right side of the face and body was slightly paretic. There were no alteration of sensation, optic neuritis, tremor, or nystagmus. He improved much under iodide of mercury, the paralysis of the third nerve almost disappearing. At the present time the condition is as follows. There is definite blunting of sensibility on the left side of the face, and no motor affection of the fifth nerve; very slight evidence of paresis of the whole of the left half of the face; the tongue is distinctly pushed to the right, and the right eye tends slightly upwards and outwards. On attempt at convergence the eyes move slightly inwards, but cannot be kept in this position. On extreme deviation to the right, the right eye moves upwards and outwards, while the left shows some weakness of the internal rectus. On extreme deviation to the left, the left eye moves outwards, while the right eye moves upwards and inwards with distinct evidence of paresis of the internal rectus. There is no clonus, and there are knee-jerks on both sides, considerably more so on the right, which is undoubtedly increased. The plantar reflexes are present and equal. Both wrist-jerks are active; the right is increased. The triceps is active in both, but increased in the right. The right pupil is much larger than the left and active to light and accommodation. The left pupil reacts to neither.—Dr. MACKEY showed a man with Diffuse Lipomata. There were large masses on both sides of the neck in the nape, as well as on the upper part of each arm and on the thighs. The whole of the back was more or less affected, and there was a pendulous abdomen. There was no splenic enlargement.—Dr. SANDERSON exhibited the uterine appendages removed from a woman on account of Salpingitis. Rest and hot douches were tried for four weeks without benefit. On Dec 28th the abdomen was opened. The left appendage was adherent throughout to the floor of Douglas's pouch by recent lymph; the tube was distended to the size of the small intestine; the fimbriated end was sealed and matted to the ovary, which was twice the normal size; its capsule was thickened and covered with lymph. The right tube was thickened by recent infiltration of its walls for two inches; being hopelessly blocked, it was removed with the ovary. The patient left the hospital well twenty-one days after the operation.—Dr. HEDLEY gave a demonstration of Modern Currents.

KIDDERMINSTER MEDICAL SOCIETY.—At a meeting of this society held at the Kidderminster Infirmary on Feb. 23rd, Mr. SAMUEL STRETTON, President, in the chair, the following cases were brought under consideration: Mr. J. L. STRETTON showed a case on which he had operated for an Abscess in the Lumbar Region, and in which later on, as pus and blood were found in the urine, the kidney had been explored without result. Subsequently a patch of caries was discovered on the side of the body of one of the mid-dorsal vertebræ. This was scraped, and the patient was now quite strong and able to follow his occupation as a gardener. There was still a trace of albumen in the urine.—Dr. EVANS related a case in which he had removed the Upper Epiphysis of the Left Thigh-bone. Fibrous union had taken place and allowed of free movement; there was only an inch of shortening, and the girl could walk without difficulty.—Dr. W. H. MOORE brought under notice a case of Enchondroma situated behind the angle of the jaw on the right side. It had existed for six years, and caused considerable deformity.—The following specimens were exhibited: Dr. EVANS (1) Acute Epiphysitis; (2) Malignant Pylorus, annular stricture, and Mr. P. E. DAVIES, Tubercle Bacilli from a Case of Phthisis.—Towards the conclusion of the sitting Mr. J. LIONEL STRETTON read a paper on Amputation following Injury.

LIVERPOOL MEDICAL INSTITUTION.—A meeting was held on March 1st, Mr. CHAUNCY PUZEY, President, being in the chair.—Dr. MACFIE CAMPBELL read notes on a case of Myxœdema with Glycosuria treated by Thyroid Extract. The patient first came under observation in June, 1889, when her condition was deplorable; her waist measurement was twenty-eight inches, and the circumference of the hips forty five inches; her face was swollen, and her hair was almost gone; her skin was harsh and dry, and there were other well-recognised symptoms of the disease. The evening urine had a specific gravity of 1032, no albumen, but abundant sugar; the morning specific gravity was 1013, with no sugar. She was treated with codeia, jaborandi, iodide of potassium, &c, until 1892, when she was put on thyroid extract, twenty minims three times a day. Her improvement was rapid and satisfactory so far as the myxœdema was concerned, but the glycosuria was but little affected. Dr. Campbell believed that the sugar was more checked by diet than by the thyroid extract.—Mr. PAUL related a case of Adenoma of the Fauces occurring in a woman aged forty-two. The growth had probably started in the tonsillar region. A preliminary laryngotomy was performed and the glottis plugged. The growth was easily shelled out of its capsule, and the patient made a quick recovery. Adenoma of the fauces or palate was, said Mr. Paul, a comparatively rare form of tumour. He also referred to a case of Laparotomy for Intestinal Obstruction in a man aged twenty-two, who had had complete obstruction for eight days. A diagnosis was made of kinking of the bowels

from localised peritonitis. All that was called for in this class of case was to drain the intestines of their contents, and when the distension was relieved the kinks ceased to obstruct. The abdomen was opened in the middle line below the umbilicus, a distended coil of intestine was withdrawn, and one of the speaker's small-sized glass drainage-tubes was inserted and fixed. Within three weeks the patient was fairly well again.—Mr. BANKS read notes of two cases of Gastro-Enterostomy for cancer of the pylorus, both of which terminated fatally. The first patient never rallied from the operation and died on the next day; the second did well for two days, but after this gradually sank and died at the end of a week. In each case the operation had been performed at the urgent request of the patient. Mr. Banks said that these cases showed the great seriousness of the operation and how such diseases as cancer of the pylorus sap and undermine the vital power of the patient. He did not intend to perform this operation again in such cases, but for the future should pass Symonds' tubes into the œsophagus, and when this failed should have resort to morphia. Taking it all round, he was of opinion that if Billroth's celebrated case had not been successful the average duration of the life of patients suffering from pyloric cancer would have been prolonged.—Mr. ARTHUR WIGLESWORTH read a paper to show that Isolation in Scarlet Fever was unnecessary and inexpedient. He said that, in his opinion, carbolic acid was a specific in scarlet fever. He had used it for thirteen years, and each succeeding year had confirmed his opinion of its great value. Flügge's recent work on Micro-organisms had, he considered, given him a scientific basis to work upon, and he now used carbolic acid as a prophylactic also. If protected by carbolic acid he allowed the freest communication between the sick-chamber and the rest of the household; but, in deference to popular opinion, he did not allow any of these exposed persons to mix with the outside world. He considered that if a patient was duly carbolised from the initial stage of the fever and all non-infected persons took small doses of carbolic acid the risk of infection was very slight indeed, and even if an attack occurred it was invariably a mild one.—In the discussion which followed some scepticism was shown as to Mr. Wigleworth's arguments and the inferences which he drew from them. The opinion was very generally expressed that the exposure of healthy children to the infection of scarlet fever, under the conditions advised by the reader of the paper, was unwarrantable and not devoid of danger.

MANCHESTER PATHOLOGICAL SOCIETY.—Mr. F. A. SOUTHAM presided at a meeting of this society held on Feb. 14th. The following is an abstract of the proceedings.—Dr. RAILTON read a paper on three cases of Scurvy Rickets, which we published in our last issue, and showed a specimen.—Dr. ARTHUR HELME and Dr. RITCHIE showed the parts removed by abdominal section from a case of Tubal Pregnancy. The chief points mentioned were as follows: (1) intra-peritoneal rupture had occurred in the fifth or sixth week, although the pregnancy was in the middle third of the tube; (2) the rupture was almost completely plugged by the ovum, which remained protruding through the hole; and (3) microscopic examination of the mole showed chorionic remains.—Professor SHERIDAN DELÉPINE then offered a communication on a Certain Mode of Spread of Tuberculosis through the Lymphatics. He referred to a previously published paper in which he had pointed out how the lymphatic ganglion on the course of the lymphatics coming from the infected region became affected in the guinea-pig after inoculation on the inner aspect of one knee. He had never found at the end of either two or even four months that all the lymphatic ganglia below the diaphragm on the side not inoculated were tuberculous; it seemed therefore evident that even at those advanced dates the diffusion of the bacilli had not taken place through the bloodvessels to any great extent. He then stated that after the first month among twenty guinea-pigs which showed well-marked evidence of tuberculosis of all the lymphatics below the diaphragm on the side inoculated, fifteen showed evidence of tuberculosis of the ganglion on both sides of the body above the diaphragm. In seven there was tuberculosis of the superficial inguinal, in two of the deep inguinal, in two of the sublumbar (in one through some abnormality) and in none of the popliteal ganglion on the opposite side of the body. He suggested that only two methods of extension could account for this peculiar mode of invasion of the lymphatic system: (1) an extension along the course of some lymphatics in a direction opposite to that of the stream, a kind of regurgitation towards the opposite side, probably after more or less complete obliteration of their lumen at their point of junction with the main lymphatics affected; and (2) an extension through the lacunar system of lymphatics. He contended that of the two theories he had advanced the latter was the most probable, as it accounted for the invasion of superficial lymphatics far from the point of inoculation at an earlier date than that of deep lymphatic ganglia, which, like the lumbar, were almost in contact with diseased ganglia. Even this explanation was not without difficulties, and these he was undertaking to solve with Mr. Radcliffe, one of his pupils, by inoculation in certain regions—for instance, in that of the tonsils, in order to discover how the process extended from the cervical glands of one side to those of the other. At the conclusion of the paper cultivations of tubercle bacilli obtained from organs of inoculated animals, microscopical preparations, and dissections were exhibited.—Card specimens were shown by Dr. DICK, Dr. H. S. WANSBOROUGH JONES, and Dr. HARRIS.

MIDLAND MEDICAL SOCIETY.—The sixth ordinary meeting of this society was held on Wednesday evening, Feb. 21st, the President, Mr. A. H. EVANS, being in the chair.—In connexion with a case of Extensive Ulceration of the Colon as a Sequel of Typhoid Fever, Dr. CARTER showed the colon of a married woman aged twenty-seven who had been atttacked by that disease. For the first month the case was regarded as perfectly typical in every respect and ran the usual course without serious symptoms; but at this point the process of recovery was checked, and the patient began to exhibit signs of more or less marked colitis. Various kinds of treatment were adopted, but with very partial relief, and two months later (three months from the onset) she died from intercurrent broncho-pneumonia. The colon was deeply and extensively ulcerated from cæcum to anus.—Mr. CHRISTOPHER MARTIN showed a Child enveloped in the Unruptured Bag of Membranes. The mother had had several children previously, all born normally. The first stage of labour lasted for about forty-eight hours and was followed by a rapid second stage. Dr. Malcomson, the medical attendant, was not sent for until the labour was over. He found on his arrival that the whole uterine contents had been passed *en bloc*; the child was dead and enveloped in the unruptured bag of membranes, together with the placenta. The child, a fœtus of between six and seven months, when first born was living and could be seen struggling for breath, but the woman in attendance had not the sense to rupture the membranes. There was no post-partum hæmorrhage.—Mr. CHAVASSE showed a patient, a man aged twenty-nine, with a large popliteal aneurysm extending into the right calf. There was no history of injury or syphilis, but extensive aortic disease was coexistent.—Mr. CHAVASSE also showed a Dissected Left Leg taken from a man aged fifty-four, who suffered from traumatic aneurysm of the peroneal artery, the result of a fractured fibula untreated for a month. The aneurysm was opened and the artery secured. Seventeen days afterwards attacks of secondary hæmorrhage and suppuration of the sac, the arteries being very brittle, necessitated Stephen Smith's amputation being performed. The dissection showed an abnormally large peroneal artery taking the place of the anterior tibial at the lower third of the leg and forming the dorsalis pedis. Both the posterior and anterior tibial arteries were very small.—Mr. JOHN W. TAYLOR showed a specimen of Omentum removed from a case of Ovariotomy. The omentum was largely adherent to the cyst and had become in many places fenestrated by the growth of the tumour. As it might in this condition have readily proved a subsequent cause of intestinal strangulation, a large portion weighing 15 oz. was removed *en masse*. The ovarian tumour was of unusual size and weighed nearly 26 lb. The pedicle was twisted. The patient was now convalescent.—Mr. TAYLOR also showed two specimens removed from cases of Hysterectomy performed by the method described by him at the British Gynæcological Society in December, 1893.—Mr. TAYLOR likewise read a paper on High-lying Pyosalpinx concealed by Retroversion of the Uterus. A small group of cases existed in which displacement of the uterus was followed by sudden and unexpected peritonitis. He narrated a case in point, giving its history, the condition found (*a*) before operation, and (*b*) at the time of operation, and the treatment necessary. Two difficulties existed occasionally in pelvic diagnosis. He laid stress on the importance of a comprehensive study of the disease and the importance of the symptoms.

PLYMOUTH MEDICAL SOCIETY.—At a clinical meeting held on Saturday, Feb. 10th, Dr. FOX showed a boy with

Transposition of Viscera, the heart being on the right side and the liver normal; he was also the subject of well-marked pseudo-hypertrophic disease.—Mr. ROW exhibited a boy aged fifteen, from whose upper lip and face he had removed a Spindle-cell Growth in August last; there had been no recurrence up to the present. The growth and a photograph of the case were also shown. Mr. Row likewise showed a "pistol" made of a piece of iron gas tube with which a man had committed suicide; the projectile, entering the pericardium and the left lobe of the liver, had passed through the stomach and embedded itself just above the left adrenal. —At a meeting held on Wednesday, Feb. 21st, Mr. LEAH, vice-president, being in the chair, in the unavoidable absence of the writer, a paper by Dr. Willoughby, on the Treatment of Hyperpyrexia, was read by the honorary secretary. In defining hyperpyrexia Dr. Willoughby did not take any one temperature, because the seriousness of pyrexia necessarily varied with the disease and the person, and he quoted Wunderlich's definition. Practically, hyperpyrexia meant such an unusually high temperature in the course of a disease as to require special treatment of its own, apart from the disease of which it was a symptom or concomitant. After narrating the diseases and injuries in which it is found, the writer raised the question whether a high temperature *per se* in the course of a disease should be treated specially, and, after advancing arguments, answered this point in the affirmative, on the ground of the rapid granular degeneration of the tissues, especially the heart muscle. Two lines of treatment were laid down—viz., to decrease oxidation or favour heat elimination, either by drugs or the application of cold to the body. The former were divided into four groups as tabulated by Dr. Lauder Brunton, but Dr. Willoughby emphasised the use of cold, locally applied, as the only proper treatment of hyperpyrexia. The cold bath was considered to not only act physically, but also to soothe the nervous system, and was recommended as the best form of locally applied cold. Two interesting cases of hyperpyrexia occurring in Dr. Willoughby's practice were narrated, and charts were shown.—Mr. SQUARE considered a high temperature *per se* as of little import.—Mr. WILLIAMS inquired how the cold bath acted.—Dr. PEARSE questioned the wisdom of giving antipyretic drugs.—Surgeon-Captain GARNER mentioned a series of 167 cases of enteric fever treated by baths of 98° to 84° F. for ten minutes at a time, and deprecated the use of brandy unless the first heart sound were feeble.—Mr. ALDOUS quoted three cases of hyperpyrexia which he had treated on board ship in the Red Sea by iced-water sheets and the injection of apomorphine hypodermically.—Dr. FOX agreed that temperatures over 105° should be specially treated.—Mr. RENDLE mentioned the use of the "air cradle."

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF STATE MEDICINE.

Recent Developments in State Medicine.—Sanitary Administration in Dublin.

A MEETING of this Section was held on Feb. 9th, Mr. EDGAR FLINN, President, being in the chair.

The PRESIDENT read a paper on Recent Developments in State Medicine, in which he said that during the last ten years considerable improvements and developments had taken place in public health administration. The Legislature had aided in this direction, and the passing into law of such useful measures as the Housing of the Working Classes Act, the Infectious Diseases Notification Act, the Open Spaces Act, the Contagious Diseases Act, and the Factory and Workshops Act had all a useful and far-reaching influence. It had been with truth said that "panic was the parent of sanitation," and if we looked back to the history of public health legislation for the past half-century, or more, we should recognise the force of this remark. This was well exemplified last year, when, in consequence of the occurrence of a number of cases of cholera in Great Britain, the sanitary defences of these countries were so rapidly and completely organised that the complete stamping out of that dreaded malady was accomplished in a short time. This was a distinct triumph for State medicine. The International Sanitary Conference, which met at Dresden last year, and which had recently resumed its sittings at Paris, was a landmark of importance in the history of State medicine, and no doubt very far-reaching and beneficial results would accrue to European sanitation generally from their deliberations. The Infectious Diseases Notification Act of 1889 had further marked an important stage in public health development, and, had the Act in the first instance carried with it compulsory clauses, its administration would have been much more easy than it had been. The Housing of the Working Classes Act, to a great extent, yet remained inoperative. This was particularly the case in Ireland, where local bodies were very loth to take action in questions involving a large outlay. The establishment of county councils in England had been an impetus to the advance of State medicine, and the position of the medical officer of health had improved vastly. In consequence, the State was now served by an official specially educated, adequately remunerated, and untrammelled in the discharge of his public duties. Thus, there was a visible improvement in the entire machinery of sanitary administration. The State inspection of industries was a branch in which improvements had been much needed. Women's industries, until very recently, were never considered as necessary to be included in the duties of an inspector, and it was only last year that women inspectors were appointed in two instances to aid in the administration of the Factory and Workshops Act. It was possible that in the near future a similar reorganisation on the basis of county councils might obtain in Ireland. The present administration of the duties of officer of health was admittedly weak, and the State sooner or later would be necessitated to provide a remedy. The interests and the duties of the Irish officer of health most frequently lay in direct antagonism to each other; the consequence was that possibly he might be indifferent, or even negligent—with the result that the State lost directly by the maladministration of its own enactments.

Dr. DONNELLY detailed the excellent system that prevails in Dublin as regards the Inspection of Tenement Houses and Dairy-yards and pointed out the necessity for similar vigilance in detecting sanitary defects in the old and better-class houses, in many of which the pumps which formerly drained the subsoil had been closed. Water-closets had been erected without constructing new water-tight drains to carry away the sewage, so that a considerable quantity percolated into the earth surrounding the house-drains, thereby polluting it. He also pointed out, in confirmation of the above, the fact that for the last few years the middle and upper classes of society suffered more severely from enteric fever than their poorer neighbours, owing to the imperfect sewers in the larger and older houses.—Dr. ROCHE said that the defective sanitary administrations in country districts were in part due to the miserable salaries paid to the medical officers for this portion of their work, and also to the fact that to many of them hygiene was an unknown and unstudied subject. The blame rested more with them than with boards of guardians. The colleges which granted them their diplomas were also to blame. He considered that the system adopted in England, where medical men who did not practise took the entire charge of sanitary affairs, was much to be preferred.—Sir CHARLES CAMERON also spoke, approving of the system at present adopted in England. He thought that sanitary engineering should form a part of the curriculum for a diploma in State Medicine. He stated that since the time he came into office 10,000 fresh water-closets had been constructed in Dublin, and so many privies abolished. He said that many of the Dublin tenement houses compared most favourably with those occupied by people of the same class in London.—Dr. GRIMSHAW, Registrar-General, said that at the time the dispensary medical officer was appointed the health officer of the district there was no other person who could be obtained to fill the position so well. He knew all the sick people, he was the registrar of births and deaths, and he was the public vaccinator. He considered that the people to blame for any defects were the ratepayers. After some remarks from Mr. S. M. THOMPSON, Dr. FALKINER, Mr. DELAHOYDE, and Mr. EDGAR FLINN, Dr. DONNELLY briefly replied.

SECTION OF SURGERY.

Nephrectomy and Nephrorrhaphy.

A meeting of this Section was held on Feb. 23rd, Mr. EDWARD HAMILTON, President, being in the chair.—Mr. M'ARDLE detailed a case of Nephrectomy and Nephrorrhaphy in which he applied a supporting lumbar suture for the relief of floating kidney and read the notes of a case in which he had successfully removed a kidney with a large cystic

monolocular) tumour. In discussing the steps of the latter operation he said that the semilunar line was the best for reaching the renal vessels, which, he contended, should be double-ligatured and cut before attempting to enucleate the organ. He advocated closure of the outer layer of the mesocolon and complete suture of the abdominal wound. The mucous lining of the ureter should be snipped off, and the end rendered aseptic by corrosive sublimate solution.—Mr. WHEELER stated that he had performed nephrectomy in ten cases, two of which ended fatally, while the others recovered. He considered that in most cases the anterior incision was the best, as it was the easiest, and obviated a danger which sometimes was present—namely, the risk of tearing the inferior vena cava. He recollected a case of horse-shoe kidney in which, post mortem, both kidneys were found to be healthy, while the connecting band contained two calculi. In this case a lumbar incision would have been useless. With regard to the oozing of blood which sometimes occurred after removal of the kidney, he found that hot sponges were sometimes effectual in stopping it.—Sir WILLIAM STOKES narrated the case of a woman with what was probably a large tuberculous abscess in the right kidney, on whom he had operated, making an anterior incision. He found dense adhesions all over the swelling, and these caused a great deal of trouble to break down. If he had adopted the lumbar incision it would have been impossible to remove the organ.—Mr. TOBIN pointed out an accident which he had actually seen take place when the lumbar incision was made—namely, opening of the pleural sac and consequent collapse of one lung.—Dr. A. J. SMITH compared the treatment of the ureter to that of the Fallopian tube in cases of pyosalpinx.—Mr. KENDAL FRANKS briefly narrated three cases in which he had performed nephrectomy. The first was a case of multiple abscesses in a kidney from which he had a year previously removed a soft phosphatic calculus. The patient recovered and was now quite well. The operation was performed in 1887. His second case—that of a girl affected with scrofulous renal disease—proved fatal. At the necropsy it was found that the other kidney was extensively diseased and that there was extensive suppurative pelvic cellulitis. The third case was that of an enormous multiple cystic condition of the kidney. It would have been impossible to remove it except by an anterior incision, on account of its size. The visceral peritoneum was stripped off the anterior surface of the kidney; the organ, which weighed 2 lbs., was enucleated; and then the edges of the posterior layer of the peritoneum were accurately sewed together. In this case he made a counter-opening in the loin for drainage.—Mr. THOMSON pointed out that it was sometimes very difficult to tell whether the second kidney was healthy, even when it could be felt.—Mr. M'ARDLE replied.

Reviews and Notices of Books.

Die Infections-Krankheiten: ihre Entstehung, ihr Wesen, und ihre Bekämpfung. Für Aerzte und Verwaltungs-Beamte. Von Dr. W. PLANGE. Berlin: Verlag von S. Karger. 1894. (*Infectious Diseases: their Origin, their Nature, and their Suppression.* A Manual for Physicians and Public Officials. By Dr. W. PLANGE. Berlin: S. Karger. 1893.)

DR. PLANGE, who has held office for nearly ten years under the German Imperial Board of Health, offers in this work a condensed but lucid account of the more important questions relating to public and private hygiene. He intends the work to serve not merely as a guide for busy medical officers of health, but also as a help to various administrative officials to obtain an intelligent and accurate comprehension of the many duties involved in the administrative work of modern hygiene. In the first part he gives, under the heading of "Introductory Matter," a short account of what he holds must be looked upon as the exciting agents of disease—bacteria—their method of multiplication, species, and distribution. He next indicates, succinctly and lucidly, the various methods of infection, the effects and mode of spread of disease, and then deals shortly with the question of immunity. In the special part of the work he divides the various diseases into three groups—viz., the miasmatic, of which malaria is taken as the example; the miasmato-contagious diseases; and the contagious. Under miasmato-contagious he classifies Asiatic cholera, typhoid fever, cholera nostras, dysentery, yellow fever, pest or plague, and epidemic cerebro-spinal meningitis. Contagious diseases (the third group), according to Dr. Plange, include acute exanthemata, small-pox, cow-pox, chicken-pox, scarlet fever, measles, German measles, and typhus fever, and the other infective diseases, of which relapsing fever, diphtheria, tuberculosis, whooping-cough, influenza, tetanus, erysipelas, glanders, hydrophobia, actinomycosis, pneumonia, rheumatism, and the other well-known contagious diseases may be taken as types. Of all such conditions as cholera, small-pox, and tuberculosis a short description is given, but the others are little more than mentioned. The following chapters deal with prophylaxis, personal hygiene, food, water, air, soil, and the methods of infection through these agencies. The chapter on immunity is somewhat sketchy, but some of the facts and figures which the author gives in regard to vaccination are well worth the attention of those who take an interest in this matter. Dr. Plange considers that no system of prophylaxis can be perfect which does not secure the coöperation of the public, and he lays special stress on the necessity for educating the public on this point. The remainder of the work is taken up with a description of the laws and regulations adopted by the German Government in connexion with the organisation of hospitals, quarantine, and other protective measures, and a discussion of such legal and individual measures as compulsory notification—which in Germany is compulsory as regards fever, cholera Asiatica, typhus fever, yellow fever, plague, and small-pox, whilst in Prussia similar compulsory notification extends to typhoid fever, dysentery, epidemic cerebro-spinal meningitis, puerperal fever, diphtheria, scarlet fever, measles, anthrax, and hydrophobia. Chapters are also devoted to isolation and disinfections of various kinds. A short *résumé* completes this thoroughly practical little work.

Notes on Nursing in Eye Diseases. By C. S. JEAFFRESON, M.D., F.R.C.S. Edin. London: Simpkin, Marshall and Co. 1894. Pp. 90.

THIS little work will prove useful to dressers and to nurses who are about to work in an eye hospital or in the ophthalmic wards of a general hospital. Dr. Jeaffreson is in error in thinking that no book framed on these lines has been issued to the public, for a well-written little book on Ophthalmic Nursing has been published by Dr. Sydney Stephenson.[1] Dr. Jeaffreson is not wedded to antiseptic and aseptic proceedings, but thinks that thorough cleanliness in the ordinary sense of the term is sufficient. He believes the three chief causes of mishap after operation are: patients' meals, going to the water-closet when they should use a bed-pan, and wandering about and taking liberties at night. We should have added: attempts on the part of the patient to raise the bandage and ascertain whether he can see, and carelessness and roughness in the first dressing of the eye. Dr. Jeaffreson makes a useful suggestion in recommending that the eye operated on should be covered with wool stained with pyoctanin, whilst for the other eye white wool may be used, which would enable the surgeon to recognise at once which eye he was dressing. Dr. Jeaffreson states that he has found a kind of movable dome made of wire and covered with black cloth, suspended from the ceiling by a pulley and sufficiently large to admit of its covering both the surgeon and patient when lowered, very useful in cases of photophobia and in those who have undergone operations. Dr. Jeaffreson dwells on the importance of attending to the hair in women, demonstrates the importance of massage in various forms of

[1] THE LANCET, Dec. 16th, 1893.

retinal anæsthesia, and shows how electricity should be applied. The recommendations given are suitable, and we may add that the work is well illustrated.

The Wife's Guide to Health and Happiness. By W. GORDON STABLES, M.D., C.M., R.N. London: Jarrold and Sons.

THE author of this book is a retired naval surgeon. In the preface he states that in writing this book he "hampered himself with no plan of campaign," which is evident throughout its pages, and in giving advice to young wives he adds, as if to increase its authority, that it may be "deemed none the less valuable in that I am a married man myself, and, as far as family goes, very much married." Dr. Gordon Stables seems to have read a good deal and has been "in the habit of making excerpts from the writings of gifted men and women." This book contains copious indications of his ability in this respect, and the first part may be described as a series of small sermons—indeed, some of the chapters are so named—containing extracts culled from many sources, and notably from the writings of various theological schools. The second and third parts, on Menstruation and Pregnancy respectively, are fairly well written, but do not display the most recent knowledge of the subjects. Referring to the use of the forceps, he says: "I know not one doctor, but a dozen at least, that never go to a midwifery case without those cross-legged, silver-spoon-looking businesses which we call the forceps or instruments, and who, if there be the least delay after the labour has made a certain amount of progress, and sometimes whether or not, clap them on and have done with it." This is scarcely the way to inspire in the minds of young wives confidence in their physicians, whose instructions they are expected to follow, and whose methods of treatment ought to be based on scientific principles.

Human Physiology. By JOHN THORNTON, M.A. With 268 illustrations. London: Longmans, Green and Co. 1894. Pp. 440.

THIS is a sensibly written and remarkably well illustrated book, the author having had the advantage of being allowed to select many woodcuts from the numerous works published by Messrs. Longmans. It has been mainly prepared, we are told in the preface, for lay students preparing for the second or advanced stage examination of the Science and Art Department. It is, of course, only a compilation, but the mode in which the subjects are given shows that the compiler has taken great pains, has good judgment, and has consulted and been guided by the best authorities, amongst whom Waller stands prominently forward. It is divided into eighteen chapters, the first three being devoted to the histology of the tissues and of the blood, and the rest to the circulation, respiration, digestion, and the other functions, with one important exception—namely, that of reproduction, which is almost entirely ignored, there being only a line or two in regard to the ovum in the text and a brief account of the fœtal circulation in the appendix, but it would appear from the syllabus of the advanced course, as revised in 1893, that this subject is not required. Amongst the numerous smaller manuals of physiology that have appeared during the last few years the work before us occupies a distinguished position, and the student who reads it may rely on the accuracy of the statements it contains.

A Legal Handbook for the Use of Hospital Authorities. By LEONARD SYER BRISTOWE, Barrister-at-law. London: Reeves and Turner. 1894.

THIS little book is dedicated by the son to his distinguished father Dr. Bristowe, consulting physician to St. Thomas's Hospital, and aims at supplying the governors and secretaries of our hospitals with information upon such questions of legal bearing as would be likely to arise in the course of the conduct of a hospital in language as far as possible free from legal technicalities and phraseology. The pamphlet on the whole is well done. It is comprehensive and perfectly comprehensible. Occasionally, it must be allowed, the information given has no special connexion with hospitals. Everything, for instance, that is said in the chapter on incorporation is, by the by, true about hospitals, but, in the main, true about any corporate body that can get itself recognised by law as "an artificial person ..... endowed with immortality." All the instruction upon internal regulation, again, would certainly hold good with respect to most companies. But it will be seen that Mr. Bristowe's idea has been to apply general legal principles to hospitals specially, so as to provide in a concise handbook just so much law as the persons for whom it was written might require. While we see that it is a good and careful piece of work from this point of view, we are certain that the author will agree with us when we say that such pamphlets must not be used recklessly: that, in fact, the governing body of a hospital who should decide, without getting more formal legal advice than that contained in a short work "free from legal technicalities," to plunge into litigation or take any summary legal or illegal proceeding, would be revealed as unwise.

New Inventions.

A KNIFE FOR OPERATING ON HAMMER-TOE.

IN operating on hammer-toe with the ordinary tenotome it too often happens, in cutting down on the bone through the ligaments of the joint, that the point of the knife is entangled and broken. The result of this accident is generally trivial, but it should be avoided. It is due to the slenderness of the knife and the small angle between the back and cutting edge at the point. Another objection to the tenotome is the length of its cutting edge, whereby the wound in the skin is often unduly extended across the toe. These considerations induced me some two years ago to devise a special knife for this operation. Messrs. Mayer and Meltzer, of Great Portland-street, accurately carried out my instructions and produced the instrument of which the annexed drawing is a representation. I have found it to answer the purpose very well indeed. In the figure A points to the slightly in-curved cutting edge, which is only a quarter of an inch long and forms an angle with the back at the point of fully 45°. The blade is broad and its back thick and rounded, and there is a rather long and rounded shank.

E. MUIRHEAD LITTLE,
Surgeon to the National Orthopædic Hospital.

Feb. 14th, 1894.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following practitioners are announced:—Professor J. Uffelmann, Director of the Hygienic Institute, Rostock.—Dr. Clemen, Medical Officer of the Rinteln Infirmary, from blood poisoning due to an operation.—Dr. Brousmiche of Brest, formerly Principal Medical Officer of the French navy.—Dr. Abelin, Emeritus Professor in the Caroline Medico-Chirurgical Institute, Stockholm.

THE LANCET.

LONDON: SATURDAY, MARCH 10, 1894.

THE report of the Commissioners appointed to consider the draft charter for the proposed Gresham University in London has now been published. The recommendations, both general and medical, are practically identical with those we have recently put before our readers, and we need not, therefore, return to them; but in the dissentient notes appended to the report there are some important observations which have such an ominous bearing on the suggested scheme that some detailed reference to them is called for.

It will be remembered that in the report of 1886 the three members of the Commission who possessed the most practical experience with regard to education—Sir GEORGE STOKES, M.P., Sir WILLIAM THOMSON (now Lord KELVIN and President of the Royal Society), and the Rev. J. E. C. WELLDON (head-master of Harrow)—doubted whether the functions of an Imperial examining board could be properly performed side by side with those of a metropolitan teaching university. The same conclusion has been arrived at by Bishop BARRY and Professor SIDGWICK, each of whom is in a position to speak with as much authority upon matters of general education as any member of the present or late Commission, for their practical experiences in university teaching have been most extensive. Bishop BARRY says: "In signing this report I desire to state that my signature merely implies a general agreement with its recommendations as to the constitution of the proposed university, on the assumption, which has approved itself to the large majority of the Commissioners, that it is possible and desirable to combine in one university two wholly distinct functions. The first is the function of a teaching 'University of London,' properly so-called, confining its operations to the metropolitan area, recognising in various ways teaching institutions therein, endeavouring to organise, direct, and supplement their educational resources, and conferring its degrees on those who have pursued a course of systematic study either in one of these recognised schools or under some other organisation approved by the university. The other is the function which the present university has taken up and discharged with signal ability and success—the function (that is) of an examining university, in no exclusive relation to London, but having to do in a large majority of cases with candidates from other parts of Great Britain, and even of the Empire, and conferring its degrees, by the simple test of examination, on students having no necessary connexion with London and (except in the case of medicine) no necessary connexion with any recognised institutions of systematic teaching, either in London or elsewhere. With this assumption, however, and with the portion of the report which adopts and defends it, I am obliged to express emphatically my absolute disagreement A careful consideration of the additional evidence and arguments on the subject laid before us has only strengthened in my mind the conviction, expressed in 1888 by the three members of the former Commission, who had the greatest practical experience in education, that there is the gravest doubt as to the possibility of rightly combining these two distinct functions. ..... I hold that the two functions are incompatible, because they involve essentially different ideas of the character of university education and the meaning of a university degree." Professor SIDGWICK, at the commencement of a most able argument against the combination of a teaching university with an examining body for external students, writes from much the same point of view. "Although I have signed this report," he says, "I am decidedly opposed to the fundamental principle on which it is framed—namely, the principle of combining the ordinary work of a university with the function—now performed by the (so-called) University of London—of impartially examining students from all parts of the United Kingdom and awarding degrees and honours on the results of such examination. I agree with three out of the six Commissioners who signed the report of the Royal Commission of 1888 in preferring that these functions should be separated. At the same time, on the assumption that the new university is to combine these functions, I am willing to give a general acceptance to the scheme proposed in this report. And finding that a decided majority of this Commission is in favour of such a combination, I have thought it right to affix my signature to this report, because I think it on the whole preferable that a university—in the ordinary sense—should be established in London with as little delay as possible, even on a basis which I regard as ill-chosen, rather than that the question should be launched *de novo* on an indefinite period of agitation."

There can be no doubt whatever that in the practical working of the university two degrees of unequal merit must be given. The degree for the external student, given on an examination standard only, will mean something very different from that obtained by the internal student, for, as Professor SIDGWICK remarks later in his dissentient note, "the university must have perfect freedom in adapting its examinations to its teaching ..... it is impossible to give due scope and stimulus to the best academic teaching unless the examination of the students taught is specially adapted to the teaching and, in part, conducted by the teachers themselves." This inequality between the examinations of external and internal students will be, perhaps, more especially apparent in arts and science, but even in medicine it will make itself felt. New physiological and pathological theories are every day springing into existence. These are taught by our youngest and most ardent lecturers and in some cases powerfully influence the daily practical work of our profession; it is obvious, therefore, that examinations conducted with an eye towards such teaching must materially differ from examinations conducted by examiners who are—speaking with all respect—less in touch with the onward progress of the medical sciences. It will thus be very difficult for the new university to do justice impartially, even in the medical examinations, to internal and external students who will probably be taught on different lines, and in the other faculties this difficulty seems to us to be almost insuperable. Meetings for considering the scheme are in course of being held by the various bodies interested therein.

ATTENTION is being directed at the present time to the subject of ophthalmia as it prevails in schools. Once this troublesome disorder has taken root in any school

or community—especially where unhygienic conditions exist, or where, at any rate, a perfect system of hygiene is difficult to maintain—it is well known that its eradication becomes a matter of extreme difficulty. There are several causes for this, one of which is that relapses are very common in this form of ophthalmia, and in this way cases apparently cured may really become persistent foci for its spread. Another is that the disease has its periods of activity and latency, fluctuating as the conditions are favourable or not to its spread and development and as the exciting causes of it are in operation or not. The past medical history of the Central London District Schools may be cited by way of illustration. As long ago as 1858 there was a committee appointed to report upon the state of the health of the children of these schools, the committee being assisted in their inquiries by the late Mr. HAYNES WALTON; and this inquiry was followed by another in 1861 and 1862, when the late Sir WILLIAM BOWMAN was called in to advise as to the causes of the epidemic prevalence of ophthalmia in the schools and the measures that he would recommend should be adopted. Very extensive and radical changes were carried out at great expense in 1889–90 by the then Board of Management, which were fully described in THE LANCET of April 5th, 1890. The physical characters of the children at all such institutions are very much alike. The children are gathered from crowded habitations and from a low class of urban population and present very much the same general features, physically and morally. Yet the disease is not invariably confined to pauper schools, for the contagious ophthalmia which occasionally prevails in certain high-class schools is of the same type and, if neglected, tends equally strongly to become chronic and a source of granular lids. A disease of essentially the same kind has prevailed in military life and was once the scourge of armies. There is good reason for thinking, indeed, that all forms of contagious ophthalmia, although varying greatly in degree and intensity of manifestation, are nevertheless of the same kind, that they possess strong pathological affinities with one another and acknowledge very similar, if not identical, etiological causes, uniting them, as it were, in a common group. The report of the Congrès d'Ophthalmologie de Bruxelles, 1858, contained a great deal of information on contagious ophthalmia generally and on the nature and symptoms of the disease and the anatomical characters of the follicular structures affected. From this report and many other sources it seems to be established that contagious ophthalmia is intimately associated with unfavourable hygienic or depressed conditions of life, with overcrowding and defective ventilation and a more or less habitual exposure to an atmosphere tainted with organic impurities, where the conditions are also favourable in other respects to the spread of contagion.

That the prevalence of this troublesome affection mainly depends upon the causes and conditions just enumerated is rendered pretty certain from the fact that they are all in operation in the endemic ophthalmia of the lower classes in Egypt, Ireland, and elsewhere; and that they existed in past pre-sanitary times, when ophthalmia was endemic in many garrisons of our army. Moreover, a very similar, if not identical, affection can, it is alleged, be artificially produced in domestic animals by subjecting them to similar unhygienic conditions. This was long ago pointed out by STROMEYER. The lower classes sleeping in ill-ventilated cabins, the military population occupying overcrowded and badly ventilated barracks, and individuals exposed to the confined air of four-post and heavily curtained bedsteads in stuffy bedrooms, are but various illustrations of persons undergoing the predisposing insanitary conditions which foster, if they do not actually generate, this disease. One of the most striking practical illustrations that can be furnished of what has been accomplished by the great sanitary improvements which have been effected since the Crimean war is to be found in the remarkably diminished prevalence of contagious ophthalmia in our army. Ophthalmia was once a scourge to the army and a most fruitful source of inefficiency and invaliding; but the unfortunate soldiers with watery bluish-red eyes, œdematous, half-closed, blinking lids, contracted brows, and sniffling nose, plainly telling their tale of pain, intolerance of light, and inflammatory action, who were so common years ago, are rarely seen at the present time.

There is some difference of opinion as to whether contagious ophthalmia invariably commences and has its *rôle* in certain follicular structures of the conjunctiva, giving rise to what are known as "sago grain" granulations. It is sometimes difficult to say in slight cases whether enlarged follicles are the objective mark of the initial stage of the disease or are only a personal peculiarity; and it is certain that in the later pathological stages of the affection other and surrounding structures are involved. The condition of the palpebral conjunctiva, as regards the appearance of these enlarged follicular structures or "sago grain" condition, may even afford a delicate test of the hygienic state of a regiment, school, or other community. Their presence is not attended by any subjective phenomena. If they become a trifle vascular they may give rise, perhaps, to a little blinking in the sun or some lacrymation. They must be carefully sought for to be discovered. The subjects of them are, however, very prone to ophthalmia on exposure to any exciting causes, and the disease sometimes assumes an acute purulent form or, more frequently, becomes chronic, leading to trachoma and grave impairment of vision. Whether the affection in its initial or early stage is contagious may be open to question; but there can be no doubt that when it is attended with discharge it is so. If the cases are not promptly isolated and properly treated, and if facilities exist for the spread of the disease—through defective or bad ablutionary accommodation and arrangements, overcrowding, and imperfect ventilation—the malady may soon extend through a regiment or school establishment. The progress of the affection in the individual, and in the community of which he forms a part, will greatly depend upon the care taken to detect and treat it at once, which can only be secured by frequent and systematic inspection of the inside of the eyelids of the whole establishment. As the disease is not usually attended in an early stage by any observable congestion of the ocular conjunctiva any objective signs of its presence must be sought for, and local treatment should be at once applied. As soon as ophthalmia has made its appearance in a school too much vigilance and care cannot be exercised in this direction and in regard to all the hygienic arrangements and sanitary details of the establishment. Affected cases should be separated from the non-affected. Every child should have

his own towel, and two or more children should never be allowed to wash in the same water; ample cubic and wall space should be given in dormitories, which should be well but comfortably ventilated and warmed; and the children should be broken up into small parties or groups and should have plenty of out-door air and exercise. If there is much dust in the yards or playgrounds these should be watered daily, and the eyes must be protected against all irritating causes, whether arising from dust, cold east wind or draughts, or direct sunshine. Efforts to improve the general health of the children must at the same time not be neglected.

IT is a curious fact that to Miss DIX, an American lady, belongs the great merit of having opened the eyes of the Scottish people to certain defects of their asylum management and to the consequent miseries undergone by a large proportion of the insane members of their community. In 1855 Miss DIX personally visited the Scottish asylums and, by her successful exposure of the wretched state of things, made herself the pioneer of much-needed reforms. A Royal Commission of Inquiry was appointed, and, after careful investigation, it "issued an admirable and exhaustive report, showing the urgent need of legislation to remedy abuses, to erect public asylums and to provide a central authority for the regulation and supervision of the insane of all classes." As a result the present Lunacy Act for Scotland was passed in 1857, the very year in which the report was made. It was no unfitting chance that led Dr. CLOUSTON to take up before an American audience the later chronicle of events, and to show how far the Act referred to has been justified by the successful carrying out of its provisions. At the International Congress of Charities, Correction, and Philanthropy held in Chicago last year, Dr. CLOUSTON discoursed on "the Lunacy Administration of Scotland, 1857-1892," and his paper, which appeared in the *American Journal of Insanity* for October last, has been issued as a reprint. Before the year 1857 it appears that the insane in Scotland were supervised and legally protected by the sheriffs of each county, who visited the asylums within their jurisdiction and attended to all complaints of undue detention or improper treatment. The all-important provision of the Act of 1857 was the appointment of a General Board of Commissioners in Lunacy for Scotland "for the general supervision of the insane in that kingdom, to see that asylums were provided by the local authorities and out of the local rates where none previously existed, and generally to see that the provisions of the statute were executed, but not to administer the asylums themselves or to act as an executive body in anything relating to the insane." The sheriffs and medical men were left to send the insane to asylums, and, if the statutory forms of admission were legally complied with, the Commissioners had no direct power of discharging a patient from an asylum. After describing in some detail the general powers of the Lunacy Board in relation to the provisions of the Scottish Lunacy Act, Dr. CLOUSTON proceeds to ask a series of sixteen questions as to the work of the commissioners during a thirty-five years' existence, and as to the results of that work and the way in which it has been carried out. Instead of giving these questions categorically, we prefer to summarise them, and to say that they ask whether in the exercise of their high calling the Commissioners have done that which they ought to have done and left undone that which they ought not to have done, due consideration being given to the interests of (*a*) the insane; (*b*) the public generally and the ratepayers; (*c*) the asylum directors and physicians; and (*d*) scientific work and progress. No one is in a better position to give an independent answer to these queries than Dr. CLOUSTON, and he is able without hesitancy to answer them all in the affirmative. We must take it, therefore, upon his unquestionably high authority, that the Scottish Lunacy System as adminstered by the Board of Commissioners is—for Scotland at all events—perfect.

Dr. CLOUSTON proceeds to substantiate his opinions by some statements of fact which, if not novel, serve to illustrate what the elaborated outcome of the system implies, so far as the disposal and treatment of the insane are concerned. The whole of the poor insane in Scotland are now provided for suitably, but not at all uniformly, either in public institutions or in private houses, living a domestic life along with the inmates of these houses; and the very varied symptoms of the different forms of insanity have so been taken into account that the insane are classified into three great groups, for each of which a different kind of provision is made. There is, first, the asylum group, comprising the acute and curable cases, with those who are dangerous, restless and difficult to manage, or who require much medical treatment. This group is subdivided into two classes, the recent and the curable class, for whom special "hospital blocks" are being provided, and the more chronic class, who are retained in the ordinary wards. The second, or poorhouse, group consists of chronic, quiet cases, who are placed in special wards of poorhouses, where all-sufficient accommodation is provided for them on a cheaper basis than in asylums. The third group, which may be called the boarded-out group, consists of chronic and harmless weak-minded patients, who are boarded with private families in cottages over many of the country districts. The figures given by Dr. CLOUSTON show that at the present time there are 8871 patients, or 70 per cent., in the asylum group; 875, or 7 per cent., in the poorhouse group, and 2560, or 20 per cent., in the boarded-out group. If all the two latter classes had been placed in asylums the cost of buildings would have been something like £700,000. Only 163 patients, or 1½ per cent, are now in private asylums.

Undoubtedly the great feature in the mode of distribution of the insane in Scotland lies in the extent to which the boarding-out system is successfully carried out. We have reason to believe that many superintendents of English asylums would willingly give the system a fair trial; but, apart from national characteristics, the circumstances of country life in England and the cost of living generally do not appear to favour the experiment, even if districts sufficiently free from the bustle and hum of industrial activity could be found, as they can be in Scotland, with reasonable and reliable domestic supervision available at minimum charges. The Scottish Commissioners, besides, are fortunate in having deputies to carry out the duty of district inspection, which it would be simply impossible for the English Board as at present constituted to undertake. Dr. CLOUSTON points also with a not unnatural pride to the greatly prevalent disuse of "airing-courts" and of locked

doors, and to the decreased number of refractory wards *pari passu* with an increase in the number of hospitals proper in asylums, as demonstrating the nature and direction of the progress made since 1857 under a system where the Commissioners and asylum superintendents work together in friendly and official harmony as professional brethren having the same great object in view. Only once does Dr. CLOUSTON appear seriously and in a critical sense to throw down the gauntlet for the Scottish system of lunacy administration, and it is when he says that "if this system has been in any way successful, it has undoubtedly been largely due to the fact that medicine and law were allocated their proper places on the Commission. The medical commissioners visit the patients and the institutions; the legal commissioners sit at the board meetings and give the benefit of their legal knowledge." We are not disposed to attach so much importance to this point as Dr. CLOUSTON does. What evidence has he that the English mode of conjoint visitation by a barrister and a medical practitioner would not have answered in Scotland if it had been tried, or what evidence has he that the introduction of the Scottish mode in this respect into England would be attended with more favourable results? Dr. CLOUSTON tells us, but not in this relation, that since 1857 there has not been any important lunacy lawsuit in Scotland, and we gather from this that Scottish lunatics, or supposed lunatics, are less contentious and more law-abiding than the English ones; but we venture to say that a contentious and suspicious inmate of an asylum is more likely to be satisfied with the personal and verbal decision of a lawyer who had listened to his own statement of his case than with the official judgment of a remote central Board who relied on documentary evidence not always clearly expressed. The smaller number of the insane in Scotland no doubt favours the successful working of their own plan in that country. Our contention is that the success of the Scottish plan of inspectorial asylum visitation for Scotland does not demonstrate the non-success of the English plan for England. Perhaps Dr. CLOUSTON did not mean to imply that it does, although his words are certainly open to the interpretation.

If Dr. CLOUSTON'S paper is essentially and entirely a panegyric, so much the more credit to his country, and to the system of which he is so able an exponent.

THE London County Council at their meeting on Feb. 27th had before them the recommendation of their General Purposes Committee to increase the salaries of two of their superior officers—the chief engineer and the medical officer of health. After prolonged discussion, which to outsiders seemed for the most part irrelevant, the Council confirmed their committee's recommendation with reference to Mr. BINNIE, and increased his salary to £2000 per annum. It was otherwise, however, with the medical officer of health, for the recommendation of the committee, so far as it concerned the increase of his salary, was "referred for further consideration." The result is that whilst the income of the chief engineer is to be raised from £1500 to £2000 per annum within the next thirteen months, the medical officer of health is, in the Council's judgment, adequately remunerated by a stipend of half that amount, or £1000 per annum. The grounds upon which the General Purposes Committee recommended advances for both these officers were substantially the same—namely, increasing work and responsibility on the one hand, and insufficiency of present pay on the other. As regards Mr. BINNIE'S advance, we do not presume to offer an opinion concerning the cogency of the arguments by which it was supported. He is a valuable, trustworthy officer, and the Council have doubtless acted prudently as well as justly in granting him fair remuneration. But in regard to the medical officer of health the case is altogether different. As members of his own profession we claim to know something of the difficulties of Mr. SHIRLEY MURPHY'S office, and of its value to the four millions of people who now inhabit this vast metropolis. We have carefully read the arguments of those who advocated, as well as the arguments of those who opposed the granting of a reasonable salary to the medical officer of health, and we think that the speeches of many of the latter contained remarks which were invidious and unjust, whilst more than one statement was, we trust inadvertently, incorrect.

In particular we protest strongly, and on public grounds, against the attempt which certain of the speakers at the Council meeting are reported to have made to disparage Mr. MURPHY by inaccurate statements respecting his antecedent professional engagements. It is not true, for example, that on his appointment to the county of London Mr. MURPHY'S professional income was limited to £600 a year. It was well known at the time that he was engaged in lucrative practice as an expert in sanitation, and when he was elected to his present appointment it was somewhat surprising that he should accept it in consideration of a stipend so small as £1000 a year.

Mr. MURPHY occupies a leading position amongst those members of our profession who devote themselves to the practice of preventive medicine. For many years he acted as medical officer of health to a large London parish, and on resigning this he was commissioned by the Secretary of State to hold inquiries into the sanitary condition, &c., of London districts. He is also President of the Society of Medical Officers of Health, and in the opinion of those best qualified to judge he is held in the highest possible esteem. Since accepting office under the London County Council Mr. MURPHY has organised the entire work of the Public Health Department, which is now making its influence felt throughout the County of London. The printed report of the General Purposes Committee gives particulars of the many and onerous additional duties, which have been laid upon him since his appointment in 1889. It appears to us that this report speaks for itself. There is, unfortunately no doubt that sometimes the salaries of medical officers of health are adversely influenced by the fact that they are settled by persons who, as owners of insanitary property, have a direct interest in preventing sanitary progress. But in the case of the London County Council, who are supposed to be in sympathy with all that concerns the health and physical well-being of the masses, we should have hoped that a good example would have been set by raising the standard of the appointment, so as to attract to its service medical officers of health possessing the highest possible attainments; on the contrary, the council have fixed such a salary and have attached

to the appointment such irksome and absurd conditions that it is a matter of surprise that a really competent man should have been found to accept it. The medical profession, however, fully expected when the appointment was made that its terms would be revised as soon as experience had shown what were the nature and extent of the work which would devolve upon the medical officer of health. It was pointed out, at the council meeting referred to, that Mr. MURPHY is in a far worse position than are his colleagues both in the City of London and in many of the great British towns, and the fact was emphasised that he is debarred from adding in any way to his professional income, and is specially denied the boon of a pension at the termination of his service.

The matter, however, cannot be allowed to rest as it is. The recommendation of the General Purposes Committee now stands referred to them by the Council for reconsideration; and we cannot doubt that when the matter again comes before that body the majority, at any rate, will see that justice is done to a most deserving and energetic officer.

IN the last issue of THE LANCET we published, at the request of the Government of his Highness the Nizam, a lengthy letter from the secretary of the Nizam's Prime Minister. A letter from Drs. GASKELL and SHORE of Cambridge was appended, and in another column of our present issue we print an article which considers the question rather from the point of view of the experience of English anæsthetists, which is said by our correspondent to lean more to the theory of chloroform being a heart paralysant than merely a medullary poison. We, like the writer, "are actuated by a desire to present to our readers the two sides of the shield." The letter of Mr. FURDONJI JAMSHEDJI points out that the whole of a large number of experiments which were made in Hyderabad under the most careful test conditions, and conducted at different times, were fully in accord with one another. In the second series, on our nomination and in response to the generous invitation made by the Nizam to THE LANCET, Dr. LAUDER BRUNTON'S well-known acumen as a critic was called in, and so far from his being able to point out any flaw in the experimental work of the Commission, he was constrained to alter his own preconceived ideas and to give his adherence to Surgeon-Lieutenant-Colonel LAWRIE'S view that chloroform under no circumstances produces heart failure. When chloroform kills, says the Commission, it does so by paralysing the respiration; even artificially diseased hearts refused to fail until marked respiratory paralysis had revealed itself. A series of interesting experiments, the importance of which, we think, has hardly been recognised, were made demonstrating at what stage natural respiration could be restored if artificially carried on. Again the Commission found surgical shock to be abrogated under chloroform. In dealing with blood pressure, however, it was found, and the fact was promptly recorded, that under this anæsthetic a considerable fall takes place. This decline which the Commission, accepting Surgeon-Major BOMFORD'S view, regarded as protective, in so far as this, that if the chloroform tension in the blood grew too high, whilst the blood pressure was falling, the blood centres would have less chance of obtaining a further dose of the drug. In short, vagal action was regarded as a protective, and any attempted paralysing of that nerve by atropine the Commission pronounced to be undesirable and dangerous.

But additional experimental work was undertaken through the munificence of his Highness the Nizam, and Drs. GASKELL and SHORE were requested to investigate th question. Their work consisted of the extremely delicate operations involved in obtaining a cross circulation between two animals. In this way, the heart of one animal being made to supply the brain of another, it was sought to ascertain whether chloroforming the feeder, whose respiratory and nervous system were of course protected, would result in its own destruction or in the destruction of the fed animal, whose nervous system was subjected to the influence of chloroform-containing blood. Upon the results of these experiments unanimity does not appear to have been arrived at. For while the eminent Cambridge authorities have come to conclusions adverse to the Hyderabad finding—their experiments proving, they affirm, circulatory rather than respiratory failure—the Hyderabad series of experiments prove, it would seem, that the effect produced is on all fours with what obtains in ordinary inhalation—viz., "lowering of blood pressure, anæsthesia, stoppage of respiration, death." With this last pronouncement Drs. GASKELL and SHORE join issue in no doubtful terms, so that it would appear that these cross circulation experiments have not as yet settled this most difficult of problems. That Surgeon-Lieutenant-Colonel LAWRIE may be able to elucidate the matter we hope and expect, and until he has done so we must hold our judgment. The letter from the Hyderabad Government also deals with some experiments conducted by Professor HARE and Dr. THORNTON of Philadelphia, and, while it claims their evidence as being wholly favourable to the view the Commission has adopted of the action of chloroform, it is pointed out by our correspondent, "A London Anæsthetist," that much of the work of these gentlemen is not fully in accord with the Hyderabad theories. Our correspondent also indicates that a large amount of both clinical and experimental evidence telling against the Hyderabad views is omitted from the letter from Hyderabad. But he has apparently overlooked the fact, that although he styles Mr. JAMSHEDJI'S letter "a manifesto," it does not itself assume any such pretension, nor does it deal in detail with any points beyond those raised by the experimental work of Drs. GASKELL and SHORE, and of Professor HARE and Dr. THORNTON. It is perhaps natural that prominence should be given to those portions of the reports by these authorities which appear to support the Hyderabad views, while less importance falls to the lot of adverse findings. A wholly dispassionate view of the position as attained to at present seems to refer the entire question yet again to that higher court of appeal, the future, before whose tribunal we may hope to find fresh and more conclusive evidence arraigned. For the time being we may, however, suggest that it is highly inexpedient and calculated to do much harm that such questions as "Is chloroform or any other drug safe?" should be ventilated in the lay press. There is too great a tendency to place this chloroform question, still *sub judice* as it is, before the public in their morning papers. The question is

one of an essentially technical and most difficult nature, on which the medical profession is alone competent to offer an opinion.

Annotations.

"Ne quid nimis."

THE ROYAL MEDICAL BENEVOLENT COLLEGE.

WE print this week a letter from Dr. Holman, the treasurer of the Royal Medical Benevolent College, and Mr. Henry Morris, appealing for aid to enlarge the chapel of the college, which will no longer accommodate the pensioners, pupils, and staff. The munificent legacy recently received by Epsom College under Mr. Pugh's will appears to have given rise to an erroneous impression that the institution as a whole enjoys a fairer pecuniary outlook; but this is not so, for the bequest was made under specific conditions, and the income derived from it cannot be applied to general purposes, but must be devoted to certain objects, which constitute an extension of the charitable work. Our readers are aware of the interest that we have always taken in the Royal Medical Benevolent College, and will therefore be certain that, while we take a little exception to one suggestion in the letter from Dr. Holman and Mr. Henry Morris, we thoroughly wish the chapel fund all success and recommend it heartily for support. But we do not quite approve the maintenance of a transept "associated with the past pupils of the college," which is also intended to be a memorial transept, "in which shall be placed tablets or brasses in memory of old pupils who have distinguished themselves." This is in contra-distinction to the best public school traditions. Such a memorial transept should surely be open to all. It is not the distinguished boy who makes the good school, and it is not necessarily the distinguished "old boy" whose memorial tablet would appeal most strongly to the sentiments of those who assemble to worship in the school chapel. Nor is it necessarily the friends of the distinguished pupil who are most certain to be gratified by the erection of such testimony to the worth of the dead. We hope that the Royal Medical Benevolent College will come into speedy possession of the £3000 for which they ask, and also tr ustthat they will see their way to applying it in a manner that leaves no sense of invidious distinction.

THE HEALTH OF MR. GLADSTONE.

THE method and circumstances of Mr. Gladstone's retirement from the Premiership constitute an event of high historical interest and have elicited an amount of public opinion which is not forthcoming in the case of most great men till their death. It is the privilege of a medical journalist to be able to look at such an event with other eyes than those of the professed politician, and when thus regarded it is even more interesting than when viewed from any mere party point of view. The length of Mr. Gladstone's life, his sixty years of active parliamentary work, his unrivalled and lofty eloquence, his knowledge and his learning, his deep interest in questions outside politics, and his sustained vigour to the day of his fourth resignation of the Premiership in his eighty-fifth year: all these constitute a personal distinction which is scarcely to be equalled in the case of this or any other country. Happily the time has not come for anything like a critical and exhaustive analysis of his active and potential intellect. It may well be that from his "blest retirement" Mr. Gladstone may have words for the present generation that shall have more weight than attaches to the utterances of any party leader. The profession of medicine is indebted to Mr. Gladstone. It is understood that he has always paid great deference to its advice: on more than one great occasion he has accorded a high tribute to its purposes and to its prospects; and it is to one of his Governments that we owe the Medical Act of 1886, under which the profession enjoys direct representation. It is our sincere desire that Mr. Gladstone may yet live many years to enjoy the repose which he has so well earned and which he knows so well how to use.

In view of the uncertain rumours concerning the health of Mr. Gladstone we are glad to be able to state authoritatively that until the evening of the 6th inst. he was in excellent health, dined at Brooks' Club, and walked home across the park. On Wednesday morning Mr. Gladstone, when he awoke, was very hoarse, and it was deemed advisable by his medical attendant that he should keep to his bed during the day. His cough at first was very troublesome, and the hoarseness subsequently increased. The temperature, however, was but 99° F., and there were no symptoms of any bronchial inflammation of a serious character. On Thursday morning Mr. Gladstone's condition had improved. His temperature remained at 99°, the bronchial catarrh had not increased, and the cough was much quieter. With regard to Mr. Gladstone's eyesight we learn that he is still able to read and write, although, no doubt, his sight has deteriorated very much lately. His eyes were examined the day before he went to Biarritz, and no immediate cause for alarm was discovered, nor was any operative interference advised at present. We are also in a position to state that when Mr. Gladstone has more leisure at his disposal he proposes to consult a London ophthalmic surgeon.

It may be of historic importance to record that about six weeks ago Mr. Gladstone was thoroughly examined by his medical adviser, who found him to be a wonderfully strong and healthy man for his age, with vigorous heart, a good appetite, sound lungs, muscular limbs, and a full and deep voice. He was altogether full of vivacity and vitality. Mr. Gladstone informed his medical attendant that he slept excellently, and that in the intervals of work he still found the greatest enjoyment in his literary pursuits. Mrs. Gladstone, who has been suffering from bronchial catarrh, has now, we are glad to state, recovered.

"DR. CHESTERFIELD'S" LETTERS.

SIR WILLIAM DALBY has written an amusing and brilliant *brochure*, a fact which all who read his papers on "Medicine as a Career" as they appeared in the pages of *Longman's Magazine* will be well prepared to learn. In his open letters to the medical aspirant he has caught the veritable spirit of the wise and temperate earl, whose sensible, if somewhat cynical, advice to his son has earned him the double distinction of an everlasting place in English literature and a damnatory epigram from Dr. Johnson. A thorough practical knowledge of the society of the time, of its wishes and its scope, of what it would stand and what it would not stand, is the essential characteristic of Philip Dormer Stanhope's letters to his son—they constitute an exact treatise upon proper behaviour for an eighteenth-century viscount. It is a similar intimate and astute understanding of his subject which marks out "Dr. Chesterfield's" letters to his son as more than an amusing contribution to serial literature and justifies their reproduction in book form. The first and second letters treat of "The Physician" and the practical and sentimental side are both present in the writer's comments. He recognises the honourable ambition of the student who intends to be in the vanguard, but points out that though many qualify by learning for public as well as academic position, but few achieve it; and he incidentally places a shrewd finger upon the reasons that have determined the success of this man and the failure of that. "Think over this letter and the last one, my dear boy," are the concluding words of

his second letter; "then take a stroll through the streets around Cavendish-square, and you will not be surprised to read on the brass plates the names of many physicians whom the public has never heard of and probably never will hear of." The third letter is on "The Surgeon," and the gist of it may be gathered from the characteristically outspoken sentence: "If you ever hear it said of one that he owes his success to social influence, or to the help of influential people, you may rely upon it (whoever says it) that it is utter rubbish." Another little fallacy, exceedingly common among laymen and occasionally promulgated by members of the medical profession, is also exposed in this letter. It is undoubtedly common belief that a surgeon must possess extraordinarily good nerve, but, as Sir William Dalby points out, the necessary coolness and calmness in emergency will always be present in exact proportion to the surgeon's intimate acquaintance with his subject. It is knowledge which gives nerve to the surgeon, not, at any rate as a rule, some constitutional form of callousness. The fourth letter on "The Specialist," and the fifth on "The General Practitioner" are equally marked by their combination of sense and humour. "Dr. Chesterfield's Letters on Medicine as a Career" have not been written as a parody of the eighteenth century style—in fact, Sir William Dalby's pen is as modern as it is correct: Addison would have found him flippant, and to what Dr. Johnson would have compared him we shudder to think—but in their bland, practical wisdom they justify the introduction of the name of Chesterfield into their title. As will be gathered, we have read this little book with great pleasure, and we believe that the advice contained in it, whether stated out or implied only in some funny little anecdote or comparison, is on the whole undoubtedly sound.

TRAINED NURSES FOR WORKHOUSES.

IN former numbers of THE LANCET[1] we referred to the recently formed Workhouse Infirmary Nursing Association, and we briefly noticed its purposes and the necessity which gave rise to its institution. We have now before us the report of the association for 1893, and are once more reminded of its objects. Of these, two are essentially important and comprehensive as describing the work of this useful organisation. They are: (1) the appointment of trained ladies as matrons in all separate infirmaries, and (2) the training and supply of skilled nurses to workhouse infirmaries in London and the provinces. The latter will be drawn from the ranks of probationers educated in such infirmaries. The report contains a reference to the fact that the past year has witnessed the introduction into workhouses of trained instead of untrained nursing, and it mentions, by way of suggestive inference, a reduction in workhouse mortality of 34 per cent. There is still, however, an immense disparity in the proportion of skilled nurses employed to the inmates who require their services, many local guardians being wedded to the belief that the nurse ought to be nothing else than a species of officer in command of a detachment of pauper women employed in waiting, when required, upon the sick. We have no wish to discourage this belief if it could be reduced to practice with benefit to the suffering poor. We must admit, however, and so must those guardians who have watched the effects of such a system in the past, that the workhouse poor have not shown, even under competent supervision, a capacity adequate to the work in question. As ward servants they are useful, no doubt, but they are not for obvious reasons adapted as a rule for the more responsible duty of nursing the sick. Apart from the fact that we should not naturally expect to find in a workhouse the most capable or the most industrious of the population, we have to remember that many of these inmates are persons of advanced age. This would by no means aid their power of acquiring a new art, especially one which makes heavy demands on the intelligence, tact, and manual nicety of its practitioners. Again, the pauper population is a floating one and a nurse inmate, especially if young, might at any time return to the general current of human life, when her services would be lost to the infirmary. Clearly then we need more than a scanty officerhood of trained attendants. Under the older and still general system a skilled nurse is employed virtually to render ineffective service and to be herself half killed with over-work. The appointment of lady matrons is certainly very desirable. At the present time the arrangements made for the bare subsistence of nurses are in some workhouses, probably in many, shamefully inadequate. Their necessary interests and those of the poor inmates also would gain much from the oversight of capable and well-educated persons. We have not space available for further discussion of this subject, but enough has been said to show for what reasons the association deserves the liberal and friendly support of the public generally and of parish guardians in particular.

[1] Feb. 6th and 13th, 1892.

CHILD-LIFE IN THE SICILIAN SULPHUR MINES.

IT is at once a startling and a reassuring fact that the labour question in Sicily seems mainly to have interested the medical philanthropist, such well-known biologists as Angelo Mosso of Turin, Cesare Lombroso of the same school, and Napoleone Colajanni of Messina having each from his own standpoint contributed powerfully to its elucidation. We say "startling" because a social evil that makes the medical man intervene is one that affects the vitality of the population, and we say "reassuring" because when such intervention has come about there is hope that the condition of things will be improved. We leave on one side for the present Dr. Colajanni's luminous *exposé* of the horrors of the sulphur mines in Sicily, and we also postpone consideration of Dr. Lombroso's psychological study of the effects of the system on character and development. Our present purpose is rather to draw attention to Dr. Mosso's instructive facts and figures as to the physical deterioration induced by such labour on the Sicilian proletariat. Take, for example, the province of Caltanisetta in the heart of the island and ponder the following statistics. In the four years from 1881 to 1884 the officers of the military levy had 3672 young *solfarari* under scrutiny. Of these only 203 were found to be fit for service in the army; 1673 were *riformati*—that is, were tentatively declared to be fit, then broke down after the regulation trials and had to be dismissed; and 1835 were remanded for further inspection at the next levy. Of the *riformati* 1249 proved to be defective as to stature, 69 were incurably narrow-chested, 64 had constitutional debility, 25 developed malformation of the thorax, 48 were hunchbacked, 20 had other corporeal deformities, 18 laboured under the malarial cachexia, 18 became blind, and 80 suffered from diverse ailments. "And this," says Dr. Mosso, "in a province under the resplendent sky of Italy, on a soil bursting with fertility, in a land prolific in intelligent sons—out of 3672 young men of twenty only 203 found capable of military service. It is with great grief and dismay that we peruse these figures and think on our native land." Other provinces of Sicily showing about a third fewer rejections for the military levy than Caltanisetta were still far from presenting the normal development proper to youth mainly agricultural in occupation; but the nadir of physical and mental abasement was reached in the mining districts, where the number of *analfabeti* (unable to read and write) is about 90 per cent. But there is an antecedent condition even worse than want of education. The lives led by the poor children of the mines are in point of decency, to say nothing

of sanitary observance, as degraded as humanity has ever sunk to. A small room will "accommodate" the young *solfararo* with six other persons of both sexes and of all ages; he sleeps in the same bed with elder sisters and smaller children, the one room sufficing for every call of nature. As often as not the pig, the goat, the ass or the mule have a share of the said "room," and eyewitnesses like Dr. Mosso and Signor Sonnino (the present Finance Minister of the Italian kingdom, whose book on Sicily is as painful as it is instructive) could not penetrate into its interior, such were the filth and the offence to every sentient organ. "Migliorate le abitazioni," exclaims Signor Sonnino. Improve the dwellings, as a beginning. Let this be the primary object of the efforts put forth by all Italians not dead to the miseries of their lowly compatriots. From this starting point legislation can intervene with its regulations for the working of mines and can gradually bring Sicily up to the standard observed by employers of such labour in other countries. Such is the problem before the Italian Legislature, and it is satisfactory to think that that body contains so many philanthropists of medical training who can bring the hygienic argument to bear in quarters hitherto accessible to the *force majeure* of revolution alone. Italy, to her heavy cost and equal misfortune, likes to pose as a great military power. She is now beginning to see that where "men decay" such a *rôle* is impossible, all the more when in her case "wealth" does not "accumulate."

SMALL-POX AT THE ESSEX COUNTY ASYLUM, BRENTWOOD.

IN reference to the outbreak of small-pox which has occurred at the Essex Lunatic Asylum, the disease at present is confined to one of the blocks in which male patients are kept. The first case occurred in the infirmary, which practically became an infected area. Sporadic cases have occurred in some other wards of the same block, attacking principally those who were convalescing from other affections and had thus been transferred from the infirmary before the nature of the disease was ascertained. All the cases have been isolated and are treated in the infirmary and in an empty house within the grounds, the infirmary being cut off from the rest of the asylum. Although there is no infection on the female side of the institution the leave of all attendants has been stopped, no visiting is permitted, and no new cases of insanity are admitted. All the patients, attendants, and employés have been vaccinated as fast as lymph could be obtained. Only mechanics and farm hands leave the gates. Many patients in the infirmary were successfully vaccinated and yet were attacked by small-pox, showing that the vaccination was performed too late to afford protection. In all, twenty-eight patients have been affected, the earlier cases being very virulent. Six cases have died from small-pox in conjunction with other disease. Four attendants have been under treatment for the disease, but are now doing well.

SIGNALLING THROUGH SPACE.

AMONGST the problems which await solution at the hands of the electrical engineer are the distribution of light and power without conductors and telegraphy without connecting wires. The latter seems now to be within measurable distance of accomplishment. Mr. Preece, in describing his experiments on this point, is reported to have said that between Durham and Darlington parallel telegraph wires ten miles apart "were found sensitive to each other's currents." Further experiments between the shore and islands some distance out at sea seem to have satisfied him that the radiant electrical waves "sent off" from a shore wire are (like light) reflected as soon as they have struck the surface of the water. Trials at Loch Ness "enabled speech to be maintained across an air space of one mile and a quarter." This falls materially short of "messages sent across planetary space." If, however, on the strength of such experiments it may be considered "not a wild dream" to speak of telephonic communication with the planet Mars, it, perhaps, may also be permissible to ask whether the transference of *thought* by electro-magnetic waves is scientifically "thinkable." It is tolerably certain that electrical variations accompany cerebral activity; in other words, a brain in action acts as a so-called electric "generator"—may it also act as a transmitter to a similar conductor "properly placed and sympathetically prepared"? Whatever the answer to such a question, it is certain that an increasing knowledge of electric wave propagation and an acquaintance with the phenomena of electric resonance or "syntony" have transformed more than one wild electrical dream into a sober electrical problem. In considering the case of the electric telegraph, it is in accordance with present knowledge to say that although electricity (whatever electricity may eventually prove to be) travels by the wire, the electrical *energy* travels by a different route—viz., by the general insulating medium outside the wire. The surrounding medium—the ether,—disturbed by electro-motive forces, propagates the disturbance by an undulatory or wave movement until the energy, reaching the wire, is dissipated into heat, or by some arrangement is utilised to do work; but the wire does not *convey* the energy, it "directs" it. How can the wire be dispensed with? The method proposed is to let the electrical waves radiating in all directions from their source encounter a similar conductor duly placed and "syntonised"—i.e., with their vibration periods in unison. "These waves of energy may thus be transformed back again into currents, which pass through the second conductor and make their presence felt in a variety of ways." In other words, instead of attempting by a wire to *direct* the energy, let it loose—if such an expression may be used—and, recapturing it by a suitable receiver, make it do work. A vibrating tuning fork will set another tuning fork tuned in unison with it into similar vibrations. The process we have been considering is the "electrical analogue" of this.

FUNERAL REFORM.

IT is no mere fad of the philosophical dilettante which is accountable for a protest by Professor Matthew Hay of Aberdeen against our present method of conducting funerals. Certain points in particular have been singled out for attack. One is the custom of wearing black clothing, or, more strictly, clothing which, apart from its colour, is of lighter texture than that usually worn at this season. Another is the period of delay which invariably precedes the departure of the funeral *cortège*. A third objection is directed, and with excellent reason, against the excess of reverent feeling which constrains so many persons, in obedience to no duty and in utter disregard of weather or climate, to remain standing and uncovered beside the grave until not the first but nearly the last load of earth has been restored to it. We are disposed to think that too much has been made in the course of these observations of the clothing question. Light textured material is not alone suitable for mourning purposes, but other and stouter fabrics of the same colour can be had and may be used by any who desire them. Thick underwear and overcoats will also in their own way make up for any deficiency in other garments. Delay, it is suggested, could best be prevented by the practice of punctuality and expedition on the part of clergymen conducting the burial services. No doubt their aid in this matter would be valuable, but we must remember that the crux of the difficulty with which we are now concerned lies in the involuntary slowness of nearly-related and grief-stricken kinsfolk. Personal influence employed with sympathy and tact will alone conquer this difficulty. We quite

agree with Professor Hay that burial services at the grave itself should be as brief as possible, not exceeding one or two minutes. Every reverent usage would be best observed if the exercises of devotion were practically completed in the late home of the deceased. Often, indeed, has the bystander at a grave had reason to attribute his own final illness to the unselfish respect with which he witnessed uncovered the burial of a friend. Before we leave the consideration of this subject we would add but one word as to the absolute duty alike to the dead and the living which calls upon all persons possessed of ordinary intelligence to abandon the long-condemned custom of coffin burial as now usually practised, and to maintain by precept and example the use of an easily perishable shell as the last vehicle of the body.

WHAT IS "BEER"?

THAT it was quite possible to produce beer from materials other than malt and hops we have stated before, but that such a process has been carried out in actual practice and that a liquid called beer, produced on the lines indicated, has been in the market and offered to the public is virtually acknowledged in a resolution recently adopted at a council meeting of the Central and Associated Chambers of Agriculture held in the rooms of the Society of Arts. It was first moved that, in the opinion of the council, it is desirable that all brewers who use sugar or any substitute for barley, malt, and hops in beer should be charged an additional licence and extra duty, and that when beer is brewed from other substances than malt and hops it should be so declared. The following amendment, however, was subsequently moved and carried: That in the opinion of the Council brewers should be compelled to declare the constituents of their beer. It would be well if this plan could be conveniently extended to many other articles intended for consumption, so that the public could have some evidence of the *bona fides* of what they purchase. It is obvious that if a schedule could be added to the Food and Drugs Act, in which the standards of food or beverages were authoritatively fixed, then the difficulty of detecting fraud and adulteration would disappear and the public would benefit considerably. The fixing of standards, however, as illustrated in the case of milk, is beset with manifest difficulties.

INJURIES TO RAILWAY SERVANTS.

CONSIDERABLE public interest attaches to a Parliamentary return lately issued, which gives a statistical summary of cases of injury sustained by railway servants on the principal railways of the United Kingdom. The return extends over the years 1870-92 inclusive. It deals neither with causes nor effects nor with explanatory details of any kind, but consists entirely of an arithmetical comparison. Dry though it may at first sight appear, it is by no means uninstructive or barren of suggestiveness beyond the proper sphere of mere figures. We note, in the first place, the satisfactory circumstance that since the year 1873 (1870 may be left out of account, since the returns in that year, being furnished prior to the Railway Regulation Act, are less full and therefore less accurate than those of later years) there has been a distinct decrease in the number of deaths reported. In 1873 the proportion of deaths to that of persons employed was 1 in 355; in 1892 it was 1 in 714. This reduction, moreover, has been characterised by fairly steady progression. In 1880 it was 1 in 502, in 1885 1 in 815, and in 1889 1 in 877. During the three succeeding years there came a rise, though not great, in the relative death-rate, leaving the ratio as above stated. It is also noteworthy that this progressive reduction has been associated and is largely attributable to a corresponding fall in the number of fatal casualties reported by some of the greater companies, while some of those which employ fewer hands exhibit, on the contrary, a bad eminence in mortality returns. It is observable also that a high average death-rate seems to persist for years as the unfortunate privilege of some companies more than others. How far this may be accounted for by special conditions of difficulty or danger, or how far by common and more easily preventable causes, it would be interesting to learn. We notice, moreover, that the average of non-fatal injuries does not vary in any strict relation with that of recorded deaths, and this fact is in itself suggestive of another which the report mentions—namely, that minor accidents are not reported by all companies upon a uniform basis of calculation. It is satisfactory, however, to learn that means are being taken to amend this want of symmetry in the methods of registration. We may at all events congratulate ourselves on reading this report on the fact that we can find even in the bare statements contained in it some suggestions of increased security on our main lines of traffic. We would also express a hope that the data which they supply will be used as the basis for further inquiry bearing upon the causes, effects, and possible prevention of accidents.

THE WORK AND THE COST OF THE HOSPITALS OF THE METROPOLITAN ASYLUMS BOARD.

IT is satisfactory to notice that the cases of fever admitted during the last fortnight of the Board's work show a decrease on that of the previous fortnight, which itself was less than that of the preceding fortnight. The number of cases of fever admitted was 564, as compared with 604. The cases of small-pox were 31, as against 27. The number of all cases of infectious disease notified to the Board during the two weeks ended March 1st was 1470 (including 661 cases of scarlet fever and 32 of small-pox), as against 1611 in the preceding fortnight. The Finance Committee recommend an increase of ½*d.* in the pound in their estimates of expenditure, and that contribution orders should be assessed on the several parishes and unions in the district for the sum of £230,697 6*s.* 6*d.* for common charges, being at the rate of 2*d.* in the pound on the rateable value, and for the sum of £59,550 for the maintenance of patients. The details of the expenditure of the temporary hospital at Tooting for fever patients—"The Fountain Hospital"—were submitted to the Board and shown to amount to £117,029. This sum for a temporary hospital seemed to surprise the Board, and a motion was passed requesting the Finance Committee to report the reasons of this heavy expenditure. The public ought to look for this report with much interest, but whether it will do so or not is another question.

THE THEORY OF THE COCHLEA.

AT the Royal Institution, on Friday evening, March 2nd, Dr. McKendrick, F.R.S., delivered a most interesting lecture on the minute structure and acoustic principles of the middle and internal ear, with special reference to the basilar membrane, the organ of Corti, and the inner and outer hair-cells. The object of Dr. McKendrick's paper was to review the arguments in support of the two theories advanced to account for the exact action of the organ of Corti in producing a just perception of musical tone. The older theory, that of von Helmholtz, is the one usually taught and assumes the presence in the organ of a mechanism ready to vibrate in response to a series of vibrating impulses. The complex wave of sound reaches the rods of Corti, which are able to analyse the wave into its separate and constituent vibrations. Each vibration then gives rise to a sensory impulse resulting in a distinct sensation. Rutherford's theory supposes that the basilar membrane with the superimposed specialised structures vibrates as a whole, and that no analysis into distinct sensation takes place there, but that the terminal fibrils of the auditory nerve transmit the unanalysed impulses

to the brain, where their separation occurs. Dr. McKendrick adopted the first theory, while he allowed that it was not, in all probability, a final explanation of the mechanism of the sense of hearing. The lecture was illustrated by models and explanatory photographs, by which the speaker was able to point to the minute structure of the organ of Corti as an indication that it was unlikely that it acted as a whole. Dr. William Snodgrass, Dr. McKendrick's assistant, had, he said, counted the fibres in the cochlear division of the auditory nerve and had found them to amount to at least 18,000. Certainly such minuteness of anatomical detail would tend to support von Helmholtz's theory. In "Foster's Physiology" this same point—that the minuteness of structure irresistibly suggests that the organ of Corti is an arrangement for analysis of sound as well as for its reception—is made. "We have only to suppose," says Professor Foster, "that of the long series of rods of Corti, varying regularly, as these do, from the bottom to the top of the spiral, in length and in the span of their arch, each pair will vibrate in response to a particular tone, and the whole matter seems explained." He immediately, however, advances among others two reasons why the question should not be considered as at rest. The variation in length of the fibres along the series is insufficient for the work thus assigned to them, and they are wholly absent in birds, which are known to clearly appreciate musical sounds. Dr. McKendrick closed an interesting lecture by showing, on a model constructed by Professor Crum Brown and himself, that the ear was not only able to analyse a compound wave of sound, but also to appreciate wave form—a fact that was pointed out by Lord Kelvin as long ago as 1878.

A CHLOROFORM FATALITY.

WE have received from Mr. H. G. Dain, assistant house surgeon to the General Hospital, Birmingham, a succinct account of a death which took place on Feb. 9th last whilst a man aged forty-one was being prepared by the administration of chloroform to undergo the operation necessary to relieve him of intestinal obstruction. We give the account in pretty nearly Mr. Dain's own words. The patient was a large, stout man, and on admission exhibited an abdomen considerably and uniformly distended; he had a history of having suffered from fæcal vomiting for three days. His pupils were contracted and his pulse was about 80—regular, full, and soft. He had been treated with opium and stimulated with alcohol. He had marked bronchitis, but no organic disease of the heart was detected, and it was ascertained that he had suffered from gout for some years. Chloroform was administered; for the performance of laparotomy. During the administration his pulse-rate continued about the same and his pupils remained contracted the whole time. The breathing was regular and fairly deep. Anæsthesia was not attained for about fifteen minutes, and the operation had been proceeding about twenty minutes (thirty-five minutes from the commencement of the administration) when the breathing ceased quite suddenly, and at the same time the pulse in the temporal artery and at the wrist became imperceptible. The chloroform was administered on lint and about two ounces were used. The usual means of resuscitation were tried, but without success. At the necropsy all the cavities of the heart were found to be empty, and the heart muscle was in a condition of fibrous degeneration. The lungs showed a large amount of bronchitis with hypostatic congestion at both bases. The liver was large and cirrhotic and weighed 6 lb. 14 oz. The kidneys were enlarged, but exhibited little disease. At the inquest the resident surgeon to the hospital stated that the patient was in a desperate condition at the time of the operation, which was one of urgency to relieve his symptoms, and that he did not regard the death as being solely due to the anæsthetic, the man's state and the gravity of the operation being factors in the result. No "overdose" of chloroform was given, and the death was from cardiac syncope.

INTERNATIONAL MEDICAL CONGRESS.

THE secretary to the English Committee is anxious that members should understand that the tickets issued by him in the first place are travelling vouchers only. Notice is then given to the Italian authorities and the "provisional cards" (white for members, red for guests) referred to in the blue printed circular are sent from Rome. Application has been made for a supply of the "provisional cards," and if this can be granted time may be saved in the issue. The English secretary would be particularly obliged if all intending applicants would write as soon as possible, in order to avoid difficulties which may arise from issuing a large number hurriedly at the last moment. Since last week the Sleeping Car Company (46, Rue Mathurino, Paris) has accorded the same proportional reduction (50 per cent.) as is granted by the railway companies.

CENTRAL GLIOMA OF THE SPINAL CORD WITH SPONTANEOUS HÆMORRHAGE.

AT the last meeting of the American Neurological Association Dr. Charles L. Dana gave an account of the following case. A man had a central gliomatous tumour in the lower part of the dorsal cord. The symptoms produced were those of a transverse myelitis, although a tumour was suspected. There was anæsthesia on the right side extending up to the twelfth dorsal spine, and including touch, temperature, and painful sensations. Just before his death he suffered intense pain and died from exhaustion. The cause of this sudden access of pain was found to be a large central hæmorrhage occurring in the tumour and destroying nearly every particle of the spinal cord at the level of the seventh dorsal segment. It was a case of central tumour of the spinal cord without any cavity formation, and thus in the strict sense of the term not a case of syringomyelia, although clinically it had all the symptoms of that condition. An interesting discussion took place on the case with especial reference to the existence or non-existence of a separate tract in the spinal cord for painful sensations. The opinion generally expressed was that there is such a tract, Dr. Dana, however, maintaining that there was no evidence to support such a view.

NEW REGULATIONS FOR OXFORD MEDICAL STUDENTS.

THE Board of the Faculty of Medicine at Oxford announce certain innovations in the Second Examination for the Medical Degree, in consequence of a recent change of statute, which requires the production by candidates of certificates of experience in mental disease, infectious disease, vaccination, and practical midwifery. On and after Michaelmas term, 1895, candidates in the Second Examination for the Degree of M.B. will be required at the time of entering their names to produce the following four certificates—viz.: 1. *In Mental Disease.*—A certificate, signed by the proper authority, showing that the holder has attended a course of lectures with clinical demonstrations in connexion with one of the recognised medical schools, or has attended for three months the clinical practice of a lunatic asylum recognised by the Board of the Faculty of Medicine. 2. *In Infectious Diseases.*—A certificate, signed by the proper authority, showing that the holder has attended for not less than two consecutive months on the clinical practice of a fever hospital or asylum recognised by the board. 3. *In Vaccination.*—A certificate from a public vaccinator appointed by the Local Government Board and authorised by them to give certificates of proficiency.

4. *Of Attendance on Labours.* — A certificate, signed by a proper authority, of having attended twenty labours in the maternity department of a recognised medical school, or the Rotunda Hospital in Dublin, or of having attended thirty cases under the supervision of a registered medical practitioner and having been present at the births. It is needless to say that we have nothing but commendation for regulations so obviously aimed at securing practical work from the candidates in departments where practical work has hitherto, not only in the University of Oxford, been an element considerably lacking.

THE DIFFUSION OF SMALL-POX.

DURING last week 15 fresh attacks by small-pox were recorded in London and 1 death was registered from the disease, 17 patients being admitted to hospital during the week, against 17 and 18 in the preceding two weeks. There were 63 patients under treatment on Sunday last in the Metropolitan Asylums Board Institutions and 16 in the Highgate Small-pox Hospital, making a total of 84, against 81 on the previous Sunday. A rise from 9 to 21 cases was witnessed last week in West Ham, double the latter number of attacks having been recorded in East Ham during February. In Bristol 13 cases and 1 death occurred; Walsall and Handsworth, Staffordshire, had each 7 attacks; Birmingham, 61 cases and 7 deaths; Aston Manor, 9 cases; Manchester, 4 cases, after a week of freedom from the disease; Oldham, 12 cases; and Bradford 14 attacks, with 1 death. Other towns had cases of small-pox in smaller numbers. During the four weeks of February the heaviest lists of cases have been 253 in Birmingham, 64 in London, 63 in West Ham, 51 in Oldham, 49 in Bradford, 46 in Bristol, and 42 in East Ham.

SIMULTANEOUS INTRA-UTERINE AND EXTRA-UTERINE FŒTATION.

DR. JULIO ERNESTO VARGAS mentions in the *Revista Médica de Bogotá* a rare case of twins which gave rise to very contradictory diagnoses and ended fatally. The patient was a young woman employed in a cigar factory who had had three children. She complained of pain, weight, and discomfort in the right iliac region and was supposed by the medical men, who saw her, to be suffering from salpingitis or an incipient uterine tumour. After a time, however, it was considered that she was pregnant, and she was delivered of a seven months child which lived a month. The pain in the right iliac region continued, and when Dr. Vargas saw her he found that though the neck of the uterus had closed there were unmistakable signs of a second living fœtus, and he hoped that it might be retained till its full time. The patient soon afterwards sent for another medical attendant, who, detecting no signs of life, diagnosed a uterine fibroma, and proposed an operation, to which the woman would not consent. Her condition, however, becoming worse, she sent again for Dr. Vargas, who found her dying of peritonitis. At the necropsy a putrid fœtus of about seven months was found in the peritoneal cavity, the uterus being quite normal. There must, therefore, have been a fœtus both in the uterus and outside it, the former being born at about seven months, and the latter dying shortly afterwards.

THE DOWNING PROFESSOR OF MEDICINE.

THE election of Dr. Bradbury to the Downing Professorship of Medicine in the University of Cambridge, a post which was recently left vacant by the regretted retirement of Dr. Latham after a tenure of twenty years, must have been almost a foregone conclusion at the university, for Dr. Bradbury had strong claims of a practical sort upon the post. A Cambridge man and a distinguished graduate, he has been connected for no less a time than a quarter of a century with the university as an examiner and a lecturer. He was a foundation scholar of Downing College, having migrated there from that home of so many medical graduates, Gonville and Caius College, and graduated in 1864 as second in the first class of the natural science tripos. He was medical lecturer at the two colleges where he received his education from 1866 to 1880, and also Linacre Lecturer in Physic at St. John's College. He has examined for the pass degrees in natural science at the university, and also for the natural science tripos and for each division of the examination for the medical doctorate, and has on three occasions acted as Assessor to the Regius Professor of Physic. As a resident in the university town and a popular consulting physician it is to be hoped that the depressed pecuniary position of this professorship, which has been treated by the press as an open secret, will not bear so hardly upon Dr. Bradbury as it would undoubtedly have done upon any candidate selected by the electors from outside the immediate university circle; but, in congratulating Dr. Bradbury upon his appointment, we may be permitted to hope that both the professorship and the college from which it draws its name will soon see better pecuniary times.

THE INDIAN MEDICAL CONGRESS.

WE have much pleasure in calling attention to the following intelligence extracted from the *Indian Medical Gazette* in regard to a matter which is likely to prove one of much interest and importance to the medical community generally, but especially to members of the profession practising in India and the East:—The proposal to have a Medical Congress in India was considered at a meeting of the Council of the Calcutta Medical Society on Jan. 24th, when it was decided that an Indian Medical Congress shall be held in Calcutta at the beginning of January, 1895. The preliminary arrangements were discussed and a general plan sketched out. It was decided that in each province local secretaries, native as well as European, should be asked to coöperate with the Calcutta secretaries, and it was further decided that the sections into which the Congress should be divided should be: (1) Medicine, including Pathology; (2) Surgery; (3) Obstetrics and Diseases of Women and Children; (4) Public Health; (5) Medico-legal Medicine and allied subjects. It was decided that all medical men practising in every part of the world, but especially in India and the East, should be invited to take part in the Congress and submit papers to be read in the different sections.

BURIAL OF THE LIVING.

As far as the western intelligence can judge from certain recorded customs, public opinion in the Celestial Empire is less disturbed than that of most other States by the sentiment of humanity. Let us take in illustration but one instance which has lately given occasion for comment in the daily press—namely, that of the live burial of persons described as either incurably diseased or incorrigibly ill-conducted. It would be difficult to find among the errors of mankind a parallel to this proceeding. The reader is uncertain whether to treat it as a serious fact or to repudiate it forthwith as the mere creation of some traveller's fancy. Unfortunately we are unable, in the face of positive assertions to the contrary by apparently reliable persons, to dispute its reality. According to published accounts of this performance the victim is, theoretically, at all events, a consenting party, and the transaction is carried out with abundant ceremony and in accordance with established usage. If this be true, we must look upon the occurrence as nothing less than a national crime, or indeed as a double crime, in which murder is blended with suicide and both are for the time sanctioned,

and therefore perpetrated, by what passes for law. The case must be a particularly hard one where the sick, from the mere impatience of their fellow creatures, have this intolerable barbarity added to their sufferings. For the credit of human character we trust that evidence in disproof of this monstrous cruelty may yet be forthcoming. It should be remembered, however, that a similar practice is said to have been included at one time among the usages of a Christian Church, and that this assertion has lately been revived, and commented on, by a well-known writer. We need scarcely be surprised, therefore, if the Chinese tale be true. If it is, there is an obvious need for Government intervention, and this even will prove little better than a fictitious makeshift if it be not accompanied by the action of those educative forces, moral and spiritual, which are the essence of civilisation and are also among the best imports which enter China from the "foreign" universe.

THE "Esposizione di Prodotti Igienici ed Alimentari," to be held in Rome next May, is in no way connected with the International Medical Congress, but is promoted by the "Association for the Advancement of Hygiene," which has its centre at Brussels. Those who desire programmes and other information regarding this exposition are requested to apply to the "Rappresentante Italiano" of the Association, whose address is Borgo Stella, No. 11, Florence.

IN the Aberdeen Royal Infirmary on Monday Professor Ogston operated on a case of enormous uterine fibroids complicated by pregnancy in a primipara aged thirty-eight, six months pregnant. The mass, which extended from far above the umbilicus to Douglas's pouch, was removed together with the impregnated uterus. So far the patient is in a satisfactory condition.

THE retirement of Dr. J. Hughlings Jackson from the physicianship of the London Hospital is announced after thirty-one years of high service, not only to the hospital but to physiological and medical science. The governors have given expression to their sense of the value of his labours to this great charity. It is gratifying to know that Dr. Jackson will be retained on the staff as consulting physician.

OUR Glasgow correspondent writes that it is with extreme regret that the profession in Glasgow have learned that, owing to indisposition, Sir Joseph Lister has had to postpone the visit he had intended to make to Glasgow this week, a visit to which hosts of his old pupils have been looking forward with much interest and pleasure.

THE Ingleby Lectures for 1894 will be delivered in the Chemistry Lecture Theatre of Mason College, Birmingham, on March 15th and 22nd, at 4 o'clock, by Professor Robert Saundby, M.D. Edin., F.R.C.P. Lond. His subject will be "The Pathology and Treatment of the Common Dyspepsia of Women."

THE subscription list of the Dr. Dickinson Testimonial will be closed on the 31st inst. Intending subscribers should send their subscriptions to Mr. T. Lawrence Read (honorary treasurer), at 11, Petersham-terrace, Queen's-gate, S.W., before that date.

THE yellow fever epidemic which has for some time been prevalent at Rio Janeiro exhibits but few signs of abatement; indeed, according to the latest advices, the scourge shows a tendency to increase. The fatality of its incidence in the gaols has been such as to excite considerable alarm.

OWING to Dr. Thorne Thorne's absence from England on official duties he will be unable to give his address on Cholera at the sessional meeting of the Sanitary Institute on March 14th. It has, therefore, been decided to postpone the meeting.

AT a meeting of the committee of the Great Northern Central Hospital, Holloway-road, on March 2nd, Mr. Alexander Morison, M.D., F.R.C.P. Edin., M.R.C.P. Lond., was elected physician to the out-patient department.

IT is officially notified that the "Segreteria Generale" of the International Medical Congress will for the rest of the month be restricted to its headquarters in Rome, to which all applications or inquiries should be addressed.

PROFESSOR W. C. ARNISON and Dr. JAMES MURPHY have been selected by the Faculty of Medicine to represent the University of Durham at the forthcoming International Medical Congress at Rome.

SIR WILLIAM BROADBENT is steadily recovering and as soon as the weather becomes favourable will leave London for a brief rest in the country.

THE Queen has been pleased to approve of the appointment of Dr. William Carnegie Brown to be an Unofficial Member of the Legislative Council of the Straits Settlements.

ALL the governments of the Russian Empire are now declared to be free from cholera with the exception of Volhynia, Kovno, Plock, and Tchernigoff.

THE dinner of the Irish Medical Schools' and Graduates' Association will be held on Saturday, March 17th, at 7 P.M., at the Café Monico, Piccadilly, London.

SIR FRANCIS LAKING had so far recovered from his recent illness as to be able to leave town on Thursday last.

THE LONDON COUNTY COUNCIL AND THE LONDON WATER-SUPPLIES.

I.

THE report of the Royal Commission on the Water-supply of the Metropolis has not been allowed to remain long unchallenged by the London County Council, to whom the questions at issue are obviously of the first importance. A volume of reports upon the subject, intended for the guidance of the Council in their future action, has been presented by the Water Committee and includes one of exceptional interest and value from the medical officer, in which he reviews the arguments for and against the assumption of the reasonable safety of the present supply from a medical standpoint, with especial reference to the conclusions formulated by the Commission. In his comments Mr. Shirley Murphy holds the balance between the optimists and the pessimists with a studious impartiality which can only add to the weight which must necessarily attach to any report from him.

The broad facts are of course admitted on both sides. Sewage occasionally containing the poison of enteric fever is discharged—with or without more or less efficient attempts at purification—into the Thames and Lea and their tributaries. The water, after a longer or shorter flow, reaches the intakes and after being subjected to processes of filtration is distributed to the consumers. It is agreed, too, that under

ordinary conditions the enteric microbes in water begin to lose their virulence in a few days, that they are liable to be destroyed by the non-pathogenic organisms present in such waters, and that, in common with other suspended particles, they undergo precipitation or deposit. Filtration through sand is capable of removing 98 or 99 per cent. of the microbes present in water, if carried on under the precise conditions of efficiency. Lastly, the mortality returns for London during past years afford no evidence of undue incidence of enteric fever upon the consumers of filtered river-water.

Other considerations are urged from the optimistic side. Pollution of rivers by sewage is illegal and therefore in a sense preventable. A minimal dose of enteric poison may conceivably be harmless. The dilution of sewage in rivers is enormous, apart from the effects of subsequent filtration; this has been illustrated, not very convincingly, by a comparison between the annual flow of the rivers in question and the annual number of cases of enteric fever within the drainage areas, the latter estimate being obtained by multiplying the recorded deaths by seven. It appears that the enteric fever death-rate in the Upper Thames Valley has, in certain past years at all events, been below the average of the country generally, and it is, of course, not to be assumed that all the enteric excreta, especially in rural districts, ever reach the streams at all, even after treatment. Hitherto all attempts to detect the specific microbe in Thames water, or in the deposit left by it on filtration, seem to have yielded negative results.

The principal objections which have been advanced against this line of evidence are twofold. In the first place, it is for the most part negative; secondly, it relies upon averages and casual samples, whereas the danger suggested (on the strength of experience gained elsewhere) is one dependent upon possibly rare coincidences of maxima and minima—maxima of specific contamination and minima of purifying processes. If it be true that enteric fever has not usually been prevalent in the upper part of the Thames basin, it would seem that from that source no great strain can have been thrown upon the purifying agencies, and that we must, at least, wait for some experience of epidemics there before abandoning the search for microbes at the London intakes or for water-borne enteric fever in the metropolis. Still, in the present state of our knowledge, we are scarcely justified in regarding the recorded attacks, and still less the recorded deaths, as a sufficient measure of the local possibility of imparting infectious qualities to water, nor can the dilution of enteric excreta be measured by a calculation based upon the average flow of a river, even if there were any evidence to show that infectiveness vanishes when a certain dilution is reached. Floods and droughts, and variations in all the known and unknown conditions which may be thought of as operative, have to be kept in mind equally with epidemic vicissitudes. At the filter-beds, again, we have to look to the maximum speed and the minimum purification in order to judge of the strength of the chain by that of its weakest link; at present we are told of little except averages, which for this purpose are misleading. Similar considerations arise with regard to the purification of sewage in places where it is attempted. The chief interest of the water consumer down stream is to know what the effluent is like at its worst—possibly at night, or on Sundays, or after heavy rain.

Mr. Shirley Murphy's examination of the London mortality returns seems to show that within recent years there can have been no diffusion of enteric fever on a large scale by any of the water companies, and this is obviously a fact of no small importance in estimating the chances of safety in the future. Assuming that none of the enteric fever that is ordinarily met with in London is water-borne, any large temporary increment due to such a cause ought to make itself apparent even in death-rates, although the experience of water epidemics in general points to the probability of low case mortality, the deaths being often singularly few in proportion to the number of persons attacked. As Mr. Shirley Murphy puts it, the absence of evidence that the public supplies have been concerned in giving rise to enteric fever in London does not mean more than that they have not conspicuously done so. That filtration, unless carried on with uninterrupted observance of the conditions of efficiency which have been formulated by Professor Koch, is in itself an insufficient barrier against the passage of pathogenic microbes, we have reason to know from the experience of Lausen, Altona, and the Tees Valley. The Tees epidemics of 1890–91 afford such a close parallel to the danger which is suggested with regard to the Thames and Lea that Mr. Shirley Murphy has felt it necessary to enter in some detail into the consideration of Dr. Barry's report and of the criticisms upon it which have been offered by the Royal Commission and by one of the witnesses who appeared before them. In common with other medical authorities who have weighed the evidence, he accepts fully Dr. Barry's conclusions and shares in the general regret that the Commission have impaired the practical value of their report by setting aside, without either acceptance or attempt at independent investigation, facts of such importance, although presented to them with the high authority of the Local Government Board.

From the medical point of view, as the report clearly shows, the present condition of the London water-supplies cannot be regarded without considerable misgiving, notwithstanding the absence of proof of mischief having actually occurred. As matters stand, large quantities of sewage pass into the rivers which supply London, some of it at points not far above the intakes, and we have no guarantee that the filtration to which the water is subjected is always efficient in the modern sense of the term—that is, capable of arresting the germs of cholera and enteric fever if and when any reach the filters. Mr. Shirley Murphy concludes his report with a demand for the provision of an administration to secure and maintain such efficiency, a demand which deserves to be supported by the whole weight of professional opinion.

ROME, AND HOW TO SEE IT.

EVERYBODY finds in Rome, says Goethe, exactly what he brings to it. Unless he comes with education, sentiment, sympathy for what is beautiful in art and memorable in history, his visit will be fruitful in nothing but confused and bewildering impressions, leaving him with no desire to return. On the other hand, if he possesses in even modest proportion the conditions of intelligent appreciation, his sojourn, were it but for a week, will form an event in his life, full of grand and august associations, delightful to cherish and still more to renew. It is a fact that the descriptions of Rome which have most deeply impressed the world have been the work of men whose days in it were few, but who brought to it, in the highest degree, the essentials of culture and insight. Thousands of men and women have been as many years within its walls as Goethe was weeks or Byron days. And yet from one page of the "Italienische Reise," or from one stanza of "Childe Harold," may be drawn more of the real Rome than the combined recollections of the thousand residents aforesaid could embody in a book. It is, indeed, the appreciative outsider that has done most for the resuscitation of the city's past, if not for the rehabilitation of its present; and just as, thanks to the Winckelmanns and Goethes, the Niebuhrs and Bunsens, the Mommsens and Jordans, "restored Rome is a German city," so it is to the compatriots of these and the fellow

countrymen of Arnold and Ruskin, of Clough and Hawthorne, of Freeman and Browning, that Italians themselves owe that respect for their noblest monuments, classical and mediæval, the want of which has aforetime resulted in such irreparable Vandalism. But for northern, mainly Teutonic, scholarship and sentiment, but for German science and British-American taste and refinement, the Italy of archeology and romance—the Rome which to-day attracts pilgrims from civilised Christendom—would not only be immensely the poorer in actual treasure-trove, and in traditional relics, duteously conserved, but would miss, even among Italians themselves, that enlightened appreciation and reverence which contrasts so strikingly with the ignorance and apathy of the last two centuries and the first quarter of this.

On a first visit to Rome, particularly if it be short, it is necessary to economise attention and time. Let only what is of primary importance in history and art be considered, leaving on one side what is of inferior interest, and there will be more than enough to occupy the most indefatigable sightseer. For this reason it would be well to take the city, not topographically, but in periods, beginning with the earliest; for we have not only a prehistoric and legendary stratum of interest in Rome and its neighbourhood, but we have a classical stratum, an early Christian, and a mediæval stratum, all of them richly represented and all of them repaying liberally the closest attention we can bestow. Typical monuments of each period are all that can be overtaken, but these are so distributed and displayed that they can quite conveniently be seen and examined within a comparatively brief sojourn.

First, let the visitor ascend what Milton calls some "specular mount" and take in a comprehensive view of the "Urbs Septicollis"—the City of the Seven Hills. The most convenient coign of vantage for such a survey is the Tower of the Capitol, commanding as it does, from its elevation and central position, not only the city itself but its scarcely less interesting environs. There, with a good map—the best being still, for the neighbourhood at least, that of Von Moltke, who amused himself during a short sojourn in utilising his military accomplishments in that way—the visitor may in one hour take in the most accurate impression of Rome, in city, suburb, surrounding campagna, and remoter hills—an impression that will never leave him and, in view of subsequent and minute explorations save him much precious time. Before leaving the Capitoline and its most ancient monuments, reserving its sculpture and pictorial galleries for another visit, he should not deny himself a glance at the Church of the Ara Cœli on its eastern eminence, and the German Embassy on its western, if only for the associations intertwined with these two edifices. For in the former Gibbon, in an immortal passage, tells us he conceived the writing of his "Decline and Fall," and in the latter Dr. Arnold, as the frequent guest of Bunsen, derived not a little of the knowledge which made his History of Rome so much in advance of its date. From the Capitol the visitor's next step should take him to the Palatine, the cradle of the Roman empire, and a couple of hours under good local guidance, included in the modest entrance fee, will make him master of its chief points—regal, republican, and imperial; and here it may be said, once for all, that while it is desirable to keep as far as possible to the chronological sequence of events this is not invariably practicable, for in construction particularly the materials of one century were utilised for the purposes of the next, so that we may have a republican "superfœtation" upon a regal base and an imperial top-dressing over the other two. But, keeping to the main lines of history, the Forum, immediately under the north-east angle of the Palatine, next claims attention, and here there is no official guide as there is no entrance fee; but the excellent indications in Middleton or Murray or the German Gsell-fels, or even the compendious Baedeker itself, will place the intelligent visitor beyond the need of further assistance. An hour thus spent will rivet the chief monuments of the great arena of Republican Rome in his mind, after which a walk through the House of the Vestals and up the Sacred Way, past the Basilica of Constantine and under the Arch of Titus to the Arch of Constantine and the Colosseum, will conclude a memorable forenoon's experience. A reperusal in some after hour of the guide-book will refresh the visitor's memory as to what he has seen, while he may note for reading, on the out journey or the home journey, or on his return to the British Isles, some of those *chefs d'œuvre* of fiction which, in supplement to a good compendium of history (Pelham's is the latest and best), impart a human or dramatic interest to the places and monuments he has familiarised himself with. Such are the "Valerius" of Lockhart, the "Neæra" of Graham, the "Actè" of Westbury, and the "Darkness and Dawn" of Farrar, all of them abounding in powerful situations and descriptions, and treated with adequate scholarship.

Before giving further indications of "how to see Rome"—and the above will be found enough for one day, especially if there are other claims on the visitor's time, such as the afternoon or evening sittings of the International Congress—it may be well to supply a few practical hints for the avoidance of risks to health—hints of which the enthusiastic and self-forgetting sightseer is peculiarly in need. "Always drive to the place you are going to see." This is a golden rule, endorsed by physicians of every nationality and of much Roman experience. Half the illnesses contracted by tourists are incurred by arriving hot and weary at their destination, where they have a great deal of standing about and even walking exercise before they exhaust its interest. In this condition the ice-cold sculpture gallery, or recent excavation, or musty catacomb find them candidates for any mischief they may harbour, and too often send them home with a chill or the beginnings of the malaise which portends an attack of fever. Having driven to the spot he wishes to see, the visitor should walk home. This precaution has kept many an indefatigable sightseer "fever proof," as its neglect has put many more on the sick list.

(To be continued.)

THE POLICY OF THE UNITED STATES GOVERNMENT IN RESPECT TO QUARANTINE.

THE delegates representing the United States Government at the International Sanitary Conference now sitting in Paris have raised the question of emigration to America. There are rumours current as to the convocation of a special international congress to deal with the sanitary aspect of the great flood of emigration ever flowing towards the United States. However this may be, and whether the International Conference now sitting at Paris will entertain the subject or not, it is essential that the views of the American Government should be known. Perhaps the Conference now sitting will not deal with emigration to America on the ground that it was convoked for another purpose—namely, the precautions to be taken in the Red Sea and the Persian Gulf in regard especially to the pilgrimages to Mecca. In that case there would be a greater prospect of another Conference being convoked so as to come to some decision as to the American phase of the problems at issue. The wisest course, perhaps, would be to simply ventilate the matter at the present Conference, allow the Powers concerned time to study the new points raised, and then bring together another Conference to deal solely with the American proposals. What has been said or done at the Paris Conference remains a secret; but there is no secret as to the views of the American Government.

In order to understand these views it is first of all necessary to realise the very large measure of autonomy or home-rule enjoyed by the various States that form the Union. The States are very jealous of their rights and have been particularly reluctant to hand over to the central authority—i.e., the Federal Government—any right to interfere with their sanitary arrangements. Each State has its special laws of health and its own sanitary authority. The Federal Government cannot exercise any control over these State sanitary authorities. In some States the public health laws are good and well administered, in others this is far from being the case. There is therefore a total want of uniformity. Those States that have a sea border do not agree with one another as to what kind of quarantine, if any, should be imposed on ships entering their ports. Of course sanitary reformers have over and over again insisted that the same rules should be established in all the ports and that such matters should not be left to the caprice of local authorities. The voice, however, of the sanitary reformers is lost amid the many other cries and political questions of the day. Nothing could be done till some urgent crisis arose which forced the whole nation to take an interest in these special and somewhat technical questions. Such a crisis occurred, fortunately, in the autumn of 1892. The action of the New York port sanitary authority in their treatment of passengers arriving from Europe caused, it will be remembered, a great outcry. It was then felt that a local authority should not be able to imperil the commerce of the whole country; also the inhumanity then displayed by a panic-stricken and incompetent local authority gave body and strength to the demand for national as opposed to State legislation. It was in consequence of this movement that at last a statute was enacted giving the Federal Government a right of control over all quarantine stations on the land and sea frontier. This was the first national sanitary law enacted in the United States. All the other public health laws have been adopted by individual States and do not apply to the nation at large. Naturally this, the first, national statute is very imperfect and insufficient. For instance, it gives the Federal Government control only over the quarantine stations, and no authority at all over the towns or neighbourhoods of the quarantine stations. If, therefore, a passenger is released from a quarantine station the Government can no longer watch him. In England, if a suspected crew or passengers are allowed to land, instructions can be forwarded to the authorities at their places of destination to watch over them in case they should become ill. This cannot be done in America; at most it could only be suggested to the sanitary authorities of the various States concerned that it would be advisable to watch such and such a passenger. Some of these authorities, especially in the Eastern States, would understand the value of such advice, and act accordingly; but in other States, especially in those in the West, this would not be appreciated, and the advice would not be followed. Therefore, all control over a passenger after he has left a quarantine station is lost, however great the danger of disease importation.

The next question is, How far can the United States afford to incur this risk? It must be recognised, first and foremost, that the water supply in a great number of American towns is bad. In England many towns bring their water from long distances, and from places where there is not much risk of contamination. In America some towns are equally well favoured in this respect, but they are not as numerous as in England. Then, again, in England many towns have filtering beds to purify their water supply. Such is not the case in America. Consequently, it is felt that in the United States, especially in thickly populated districts, there are many towns where the conditions are such as to render them liable to epidemics of cholera as severe as that which afflicted the town of Hamburg. Undoubtedly the Federal Government would be very pleased to apply in America the system which has been carried out in England and in France; but it is materially impossible to attempt anything of the sort. In England there is an army of well-trained and trustworthy medical officers of health, sanitary inspectors, disinfectors, &c.; in America this machinery does not exist; nor was it created in England in a day. It has been the slow result of hard and earnest work, and England has spent more than £100,000,000 for such purposes. What is at once possible and successful in England after all these sacrifices and all this work is not possible in America, where there has been as yet no national legislation and no joint effort. Therefore the American Government is not disposed to abandon quarantine; nor will this determination be shaken by the boasting of English sanitary authorities. England, it is urged, abandoned quarantine after it had put its house in order and not before. This abandonment of quarantine is, too, of quite recent date and does not apply to Malta, Gibraltar, and other British colonies; in other words, while approving in the abstract of English methods, the American Government has not the means of carrying them out.

The commercial situation in America is, moreover, quite different. America lives on its internal, not on its foreign, trade. What this internal commerce is may be judged in some measure from the fact that at the end of last year there were 63,800 kilometres more of railways in the United States than in the whole of Europe put together. Then there are in America the magnificent and lengthy navigable rivers. Nothing similar exists in Europe. Now if cholera broke out in any part of America we should have States imposing quarantine against arrivals from other States and cities taking measures against other cities. Each State being free to do as it chooses, and panic aiding, restrictions of all kinds would be imposed that would check and ultimately paralyse the home trade and traffic of the United States. As this interior commerce is perhaps a hundred times more important than the exterior or foreign commerce of the United States, the Government does not feel disposed to sacrifice the hundred for the sake of preserving the one. It will base its action on this fundamental principle thus. Firstly, excepting the last two epidemics, the United States have always suffered from cholera when there has been cholera in Europe; secondly, cholera has always been brought over by emigrants who were actually ill, or by the soiled personal effects belonging to emigrants. In one case an emigrant brought over clothes which he had packed up in an infected district of Sweden. He started from a European port free from cholera, landed at an American port equally free from the disease, and then travelled a considerable distance into the interior. It was only when he reached his final destination that he unpacked his clothes, and there cholera broke out three or four days after his arrival. The United States Government sanitary advisers do not fear merchandise or saloon passengers, but they urge that precautions should be taken against emigrants.

There is no desire to interfere with traffic and to place ships in quarantine, but precautions should be enforced, if not on the American side, then at the point of departure. The latter is the solution of the difficulty which the American Government desires to submit to the European Powers. In the name of humanity and of good neighbourly feelings, care should be taken not to ship over to America infected clothing or persons likely to convey infectious or contagious diseases; but, if this principle does not suffice, then, even from selfish motives, the European Governments should act in the manner desired. A great deal has been said about the pilgrimages to Mecca, and it has been urged that, in English ships alone, as many as 20,000 pilgrims have been taken to Mecca in one single season; but this is nothing when compared to the 400,000, or so, emigrants who yearly go over to America. This great current of humanity travelling through Europe on its way to the New World exposes Europe itself to considerable danger, and it would be to the latter's interest if these immigrants were forced to observe laws imposing cleanliness &c. from the moment that they commence their journey. Then, when finally the emigrant reaches his ship, he is stowed away in an overcrowded steerage, where the most unsanitary conditions prevail. The pilgrims to Mecca are not worse off than the steerage passengers to America; and the sanitary regulations of the pilgrim ships will be better in themselves and better applied than are those governing the steerage passengers to America. If considerable improvement in this respect is not enforced, the European Powers will be the losers, because quarantine will be imposed on ships arriving in America, and this will not only injure the passenger traffic but also the exportation of merchandise to the United States. The American Government consequently desire that steerage accommodation should be considerably improved, that care should be taken not to allow persons likely to convey disease to embark, and that all soiled personal effects should be disinfected before they are taken on board.

Such, briefly and without comment, are the views, with the causes underlying them, which, we have good reason to know, are held by the United States Government.

THE HYDERABAD EXPERIMENTS AND THEIR TEACHING.

(BY A LONDON ANÆSTHETIST.)

THE interesting letter addressed by Mr. Furdonji Jamshedji, private secretary of his Excellency the Nawab Vikar-ul-Umra, Bahadur, Prime Minister of his Highness the Nizam of Hyderabad, to Drs. W. H. Gaskell, L. E. Shore, H. A. Hare, and E. Q. Thornton, published in THE LANCET last week, partakes somewhat of the nature of a manifesto, and as such calls for some criticism. It is a regrettable circumstance that the experience of the medical profession in Europe does not tally with the statements which are contained in it. The letter rehearses the findings of the Hyderabad Commissions, which, although often repeated, cannot be said to have met with anything like general acceptance. If so ready a solution of the question—How does chloroform kill in temperate climes?—could be found in the faulty practice of what is called the "English school," there is no doubt that the English school would gladly welcome the proof of the allegation, and by mending its system according to Scotch models, do away with the terrible chloroform mortality. Unfortunately, no one versed in the practice of Europe could accept as correct such a statement. Since the publication of Sir Joseph Lister's now classic articles dealing with chloroform in "Holmes' System of Surgery" the practice of England and Scotland has practically become one. The rule of watching respiration under chloroform has become universal—a point that seems often to be lost sight of. Some teachers, notably in London, advise that the pulse should be also watched, but I think Mr. Jamshedji's inspired letter hardly represents this with sufficient clearness; it suggests rather that the English school teach pulse watching to the exclusion of respiration watching. This is not accurate as far as my experience goes. I think the letter also fails to accentuate with sufficient distinctness that the researches of the Hyderabad Commission apply only to the lower animals. Nor do I think that the statement can be accepted that Scotch statistics of human beings coincide with those of Hyderabad. In the statistical report prepared by and published for THE LANCET several deaths were reported from Edinburgh, and in the absence of special inquiries by coroners' courts in Scotland it is quite likely that even the instances of fatalities under chloroform published by THE LANCET are actually below the actual number which occur north of the Tweed. Certain it is that at hospitals where Syme's rules are followed deaths under chloroform occur. The statement (*a*) concerning shock under chloroform applies only, if at all, to the lower animals, and not to man; it is the constant experience of chloroformists that alterations in the nervous mechanism controlling respiration or circulation are brought about by "shock" in patients under the influence of chloroform. The experimental work upon the lower animals also is not all in harmony with the Hyderabad finding upon this point. (*b*) That the heart never fails before respiration is, of course, the *crux*, and unfortunately the statement made in the affirmative or negative does not carry conviction. The statement made under (*c*), that the lowering of the blood pressure under chloroform is harmless, is denied by Professor Hare and Dr. Thornton in the paper to which the letter refers, while other experimental work, which gives a direct denial to much of what the Hyderabad Commission bases its conclusions upon, is ignored in this letter. (*d*) If the punctuation of this paragraph is correct I grieve that so emphatic a statement as that "chloroform anæsthesia is free from risk" should be made. It seems to me that much of the great value of the work of the Commission is marred by statements which are not, I submit, warranted by the present state of our knowledge. The wording of paragraph 8 is, I think, not fortunate; for, as its reads, Professor Hare and Dr. Thornton are made to say that they agree with the "conclusions" of the Hyderabad Commission, which to most readers would convey the impression that these gentlemen are at one with the conclusions based upon the Commission's experiments. A reference to the context, however, shows that the "conclusions" referred to are certain statements, mainly of the nature of instructions, appended to the Commission's report, which direct the chloroformist to watch the respiration, keep his patient on his back, and so on. These "conclusions" are practically those issued by the special committee of the Royal Medical and Chirurgical Society in 1864. That Professor Hare and Dr. Thornton are at variance with the findings of the Hyderabad Commission in many ways must be patent to all who have read the abstract of their report which appeared in the columns of THE LANCET. I also think it would help on the fair discussion of this question, which cannot be regarded as at present closed, if mention had been made of the fact that Professor Wood does not admit the arguments of Professor Hare and Dr. Thornton, and that Drs. Gaskell and Shore are not prepared to accept the conclusions at which Surgeon-Lieutenant-Colonel Lawrie has arrived by study of their experiments or the additional research he prosecuted on the lines of cross-circulation initiated by them. In offering the above criticism I am actuated by a desire to present to the readers of THE LANCET the two sides of the shield. There can be no doubt that anyone who can show the splendid results which Surgeon-Lieutenant-Colonel Lawrie can, the more so when he finds the experiments made in India under like conditions upon lower animals bear out his views about chloroform, has a right to speak as one having authority; but from the English standpoint—or, perhaps I should say, European—supported by the experiments of other scientists than those to whom the letter refers, as well as by the discrepancies which certainly appear in the work of Drs. Gaskell, Shore, Hare, and Thornton, when it is compared with that of Surgeon-Lieutenant-Colonel Lawrie's. I am bound to admit—and do so with much regret—that even the skill, energy, and talent of the latter gentleman and the princely munificence of his Highness the Nizam have not set at rest, as far as Europe is concerned, the doubts entertained by the profession as to the desirability of reinstating chloroform into the premier place as a "safe anæsthetic."

There is one other point I desire to advance. If we are to admit as evidence the experimental work vouched for by the Hyderabad Commission and to supplement that by Surgeon-Lieutenant-Colonel Lawrie's experience in his hospital at Hyderabad, we cannot refuse to accept the experimental work of McKendrick, Wood, MacWilliam, Gaskell, and Shore, and I would add of Hare and Thornton—for the last four-named join issue with the Hyderabad teachings upon important points—nor the accumulated experience of the clinical work of the last forty-seven years. The observers I have cited stand either convicted of the most utter carelessness in the manipulations of experiments with which their training renders them expert, or they are right in their assertion that the action of chloroform in lethal doses is that of a nerve destroyer, paralysing muscular fibre and nerve fibre alike. Upon the clinical side we have to decide whether everyone in Europe for forty-seven years who has had a death under chloroform has followed a faulty method, and so allowed his patient to die, or whether the operations, the stamina of the patients, and their environments are different from what obtains in Hyderabad. If we refer to THE LANCET'S statistics and others, we see that practically those who use chloroform most largely are those trained in Scotch schools, and these, following Syme's rules, should obtain Syme's results, if rules are infallible. Unhappily they do not. We are, therefore, driven back upon troubled waves of doubt and disputation, and bound to join issue with those who believe that the question how to give chloroform in perfect safety is settled once and for ever.

LONDON AND COUNTIES MEDICAL PROTECTION SOCIETY.—A meeting of the council of this society was held at 57, Harley-street, on the 27th ult., under the presidency of Dr. Heron, when the following business was transacted. It was decided to remove the registered offices after the 31st inst. to 12, New-court, Lincoln's Inn, W.C. A standing "legal committee," consisting of ten members, was appointed, to whom matters of a legal or defensive character will be submitted. A committee was also formed for the purpose of watching Parliamentary proceedings interesting to medical men. A vote approving a recent prosecution was unanimously passed. The question of changing the commencement of the society's year from May 1st to Jan. 1st was discussed, and a resolution was passed directing the legal committee to revise and consider the existing Articles of Association and report thereon to the meeting of council in April next. Finally, the list of candidates for membership was approved and all were elected.

THE MEDICO-LEGAL ASPECT OF THE CASE OF MARTIAL BOURDIN.

THE accompanying photographs of Martial Bourdin, who was killed by the explosion of the bomb in Greenwich Park on Feb. 15th, strikingly reproduce and illustrate the description which we were able to publish of the necropsy on Feb. 24th, and will be of great interest to our readers from a medico-legal point of view.

The following is a *résumé* of our account of the external appearances as described by us in that issue: "He was a short man, about 5 ft. 1 in. or 5 ft. 2 in. in height, delicate in features and general appearance, with a small hand and small limbs, a thin, fair moustache, and light hair, from two to three inches long, parted in the middle and brushed straight back. His left hand and wrist were

FIG. 1.

The illustration shows the main circular wound close to the umbilicus. The other marks indicate superficial charring.

FIG. 2.

Back and front view, showing at the back the deep wound below the right last rib; and on anterior view the deep wounds on the front of the left thigh. The other marks indicate superficial eschars and the main abdominal wound.

entirely blown away, and the tendons of the wrist and fingers were exposed for varying lengths, the longer tendons being on the extensor aspect. No damage was done to the right hand, but sundry black points—none larger than a pin's head—could be seen, especially on its radial aspect. A nearly circular opening into the abdomen was seen immediately to the right and slightly above the umbilicus. It was about one inch and a half in diameter, with a black, charred circumferential margin. A posterior opening was visible just below the right last rib, through the quadratus lumborum muscle, almost linear in character, except towards the spine, where it was a little more oval. It was through this wound that the pieces of the metal bomb found before an internal examination had been made had passed. On the left thigh and leg were seen numerous charred wounds, varying from one-third of an inch to an inch in length, and some of these were found to be quite superficial and others to extend more deeply. Just below the right hip-joint, in front, a deep wound passed down almost to the femur and in close proximity to the femoral vessels; another on the outer side, about an inch below the great trochanter, also ran deeply, and in this a large piece of metal was found. One or more smaller pieces of metal were found in the other wounds; but generally small pieces of clothing were the only foreign bodies obtained from them. On the left side there were superficial burns in the front of Scarpa's triangle, on the trunk and on the outer side of the shoulder. The bomb was probably held in the left hand, which had been placed a little above and to the right of the umbilicus, and, whilst the injuries to the left thigh were produced by a downward direction of the explosive current, the main force passed upwards and slightly obliquely to the right, missing the spinal column and the anterior spinal muscles and the large vessels. It is remarkable how little damage was produced by the bomb, and this can only be explained by its being so near to the body when it exploded, and so affording very little space for the scattering of its contents."

The photographs were taken by Mr. T. Sturdee of St. John's, S.E.

THE CHELSEA HOSPITAL FOR WOMEN.

IT will be remembered that at a meeting of the Chelsea Vestry on Feb. 6th Dr. Louis Parkes, the medical officer of health and public analyst for Chelsea, presented a report on the sanitary condition of the Chelsea Hospital for Women which reflected gravely upon those responsible for the general and medical management of that institution. This report, which was of so serious a nature that the vestry unanimously resolved to forward a copy of it to the Local Government Board and the Home Office, requesting that an official inquiry should be made into the matter, was printed in THE LANCET, for which reason we are happy to give the same publicity to the letter which follows:—

Letter to the Editors of THE LANCET *from the Treasurer of the Chelsea Hospital for Women.*

SIRS,—Following the letter of Dr. Eden, the secretary of the medical staff of this hospital, of the 21st ult., I am instructed by the Board of Management to write you as promised. It is from no want of respect to your journal that a full reply to your article of the 10th ult. has not been forthcoming till now. You are aware, as stated in that article, that the Vestry of Chelsea had asked of the Home Secretary and the Local Government Board an inquiry into the management of the hospital during the past year. Both these authorities have refused to institute such an inquiry. The Board of Management and the medical staff would have welcomed the most searching investigation by either the one or the other. However, the vestry's demands having been refused by the Home Office and the Local Government Board, we are free to address you. Herewith are presented to you full and accurate details of the four classes of operations as to which the medical officer of health for Chelsea makes special reference, and they are tabulated in such a way as to answer the five questions he asks as to each class. Moreover, the name of the operator is appended to every case. We make our reply in this form as you have endorsed his queries, although we do not for one moment admit the rights of any medical officer of health, however distinguished in his own speciality, to set himself up as a judge of the operative work of this or any other hospital in his district. We venture to submit that to do so would be to set up a most dangerous precedent. We believe this is the first instance where any medical officer of health has, in a statement made professedly as to the insanitary condition of a hospital, taken occasion to make an attack upon the entire medical staff reflecting upon their professional probity and skill. It is needless to say that had these reflections been directed against any single member of the staff Dr. Parkes would have been proceeded against for libel and defamation of professional character, from which even his professional position would not protect him.

During the year under review 28 patients remained in the hospital from the previous year, and 636 new cases were admitted, making 664 under treatment. Of this number 373 required operation. Thirty-five women died, a general percentage mortality of 5·2 per cent. Of the 35 deaths, or 36 as has been alleged, including a prematurely born child, 13 never were operated upon at all. The death-rate amongst those not operated upon was therefore 4·9 per cent. This proves to demonstration that during 1893 the class of cases brought to us for treatment was one of patients in the last stages of illness. Our books show that the ordinary formalities of obtaining letters had again and again to be dispensed with, and that desperate cases were admitted simply in the common cause of humanity. Doubtless in this way some unsuitable cases were received, but it must be remembered that an accurate diagnosis cannot be made of obscure internal disease till after admission. Once admitted, we felt the responsibility of doing our best must be borne, and that it would be inhuman to turn the poor creatures out again merely to keep our statistics in a condition favourable to the medical staff. In this way at least fourteen cases more or less septically infected before admission came into our wards and unquestionably exerted a malign influence on some of our other cases. It is manifestly unfair to take one year's work and upon that to credit us with a death-rate of so many per cent. for this or for that operation. It is no more right for the medical staff to be specially blamed because the percentage of deaths of ovariotomy cases has been higher in 1893 than in any previous year than it is for them to claim undue praise because in six cases of extra-uterine gestation operated on in the same year there were absolutely no deaths.

The whole question thus raised as a side issue to the insanitary condition of the hospital bristles with fallacies. As to the sanitary report as laid before the vestry of Chelsea by Dr. Parkes, it involves that gentleman in a serious charge of misrepresentation and neglect. We do not stop to dwell upon the fact that he has recommended that the main drain of the hospital be carried inside the building, whereas it has been hitherto outside, nor that on many other points he is in conflict with other distinguished sanitary authorities; nor do we stop to plead that everything and every appliance that was regarded as sanitarily perfect was used regardless of expense when the hospital was built fourteen years ago. The gravamen of his charge is that he made his way into the hospital, that he discovered the insanitary condition of the hospital, and that he felt compelled to apply to the vestry to close the hospital on Feb. 6th, 1894; whereas the first case of scarlet fever occurred on Dec. 27th, 1893. The hospital was closed on the initiative of the treasurer on Dec. 29th, 1893—five weeks before he presented his report, be it noted. No patients were ever infected; three nurses were laid up with fever, not four, as he states; so promptly were they isolated and removed that in three days the outbreak was over. After closing, steps were taken to clear the hospital as speedily as could be done with due regard to the safety of convalescent patients; on Jan. 15th the hospital was empty. In the meantime it had been resolved to place the institution in the hands of the medical officer of health for disinfection and general inspection. On Jan. 17th, 19th, and 20th the medical officer of health inspected the hospital, and on the 22nd, by invitation, attended a meeting of the house committee, making a verbal report and generally advising. On the 24th his written report was received as to suggested sanitary improvements. Plans and specifications were forthwith got out and tenders invited. On Feb. 3rd, 1894, the treasurer of the hospital wrote Dr. Parkes to the effect that his recommendations would be carried out. On Feb. 2nd, 3rd, and 5th the sanitary engineer of the hospital waited upon Dr. Parkes with the plans embodying his suggestions and was refused an

interview on each occasion. Yet, in the face of all this, regardless of what injury it might do to an institution which had been established twenty-one years, officered by men all working with the common object of saving life and relieving suffering, he thinks fit to present a report to a body of laymen reflecting on the professional probity of certain of his medical brethren and asking for powers to close a hospital which he well knew had been shut for five weeks, and in which he knew public money was being expended to carry out loyally every recommendation, reasonable or otherwise, which it had seemed good to him to make.

So serious a view does the Board of Management take of Dr. Parkes' proceedings that they are making representations embodying all these facts to the Home Secretary, to the President of the Local Government Board, and the Chelsea Vestry. I wish I could have made this letter shorter, but the wide scope of the charge makes a brief reply impossible.

I have the honour to be, Sirs, your obedient servant,
HENRY E. WRIGHT, Treasurer.

Accompanying this letter we have received a pamphlet prepared by Drs. Fenton and Eden at the desire of the committee of the Chelsea Hospital for Women as a reply to the queries of Dr. Louis Parkes. The contents of this are so bulky that we are certain that its authors will see the entire impossibility that we should print it as written; but we are happy to state that, wherever their statements, as we reproduce them in abstract form, may appear bald, detailed and circumstantial explanations are forthcoming. The following paragraph in Dr. Louis Parkes' report, which we published in our issue of Feb. 10th, is virtually the origin of this reply: "I am very strongly of opinion that, in the interest of the public generally, an authoritative official statement should be forthcoming, setting forth the numbers of each distinct class of operation, the percentage mortality of each class, the actual cause of death subsequent to operation, and the amount of permanent relief afforded in the cases not terminating fatally."

Abstract of Reply by Drs. Fenton and Eden, presented to the Board of Management of the Chelsea Hospital for Women and enclosed in the Treasurer's Letter to THE LANCET.

In 1893 the number of in-patients in the Chelsea Hospital for Women was 636. Of these, 373 underwent operation. There were 35 deaths in all, properly excluding the death of a premature infant—that is, there was a general mortality of 5·6 per cent.; and of these 23 occurred after operation, giving a mortality of 6·1 per cent. These figures are then accounted for in four general tables: (1) A table of ovariotomies; (2) a table of removals of diseased ovaries and their appendages, including six cases of extra-uterine gestation; (3) a table of operations for tumours of the womb, including fibroid, fibro-cystic, and malignant tumours and polypi; (4) a table of operations to relieve prolapse of the womb, including ventro-fixation of the womb, perineorrhaphy, kolporrhaphy, and kolpoperineorrhaphy. Table (1) shows the results of 31 operations, with 6 deaths, the aim of the operation being in each case to save life. A footnote mentions 5 cases of exploratory incision only, with 2 deaths. Table (2) shows the results of 16 operations, with only 1 death; of these, 12 operations were undertaken to save life and 4 to relieve pain, 1 of which accounted for the death. Table (3) shows the results of 42 operations, of which 9 proved fatal; all were undertaken to save life, and 8 were hysterectomies. Table (4) shows the result of 70 operations, with 2 deaths, all the operations having been undertaken to relieve pain.

In the prefatory statement preceding these tables Drs. Fenton and Eden write as follows: "We find that in 13 of the total of 36 cases no operation had been performed; that 14 deaths were due to sepsis, but of this number 6 were infected before admission to the hospital, and, doubtless, exerted a malign influence upon our other operations. As much may be said of 8 of these cases out of the 13 which were never operated upon. Indeed, in this introduction of so many septically infectious cases we have been in the year under review most unfortunate. This is chiefly and directly due to the fact that more cases in the last stages of illness have been admitted at the doors than in any previous year, which cases, in the common cause of humanity, could not be turned away. 9 deaths after operation were due to other causes than sepsis. Among the cases which have been taken in during the past year, which have very materially added to our death-rate, are 1 case of bronchitis, 1 of broncho-pneumonia, 1 of suppurating kidney, and 1 approaching childbirth, resulting in the death of the child—all of which told against our death-rate."

SANITARY ASPECT OF THE NEW FRENCH CARNIVAL.

THE students of the University of Paris, and notably the medical students, have definitely established a new *fête*. The old carnival was dying a natural death. Formerly the butchers paraded the streets on Shrove Tuesday with a prize bullock, accompanied with masks. At the same time a few persons in fancy dresses went about, but there were so few of them and their dresses were so poor that the custom died out. Two or three years ago, however, the Parisian *confetti* were invented, and this sufficed to revive the carnival festivities. Still Shrove Tuesday comes so early in the season that the weather often prevented out-of-door festivities. Thus with common accord the Parisian population has decided to hold its greatest annual carnival at Mid-Lent. The students, in order to revive the old masquerades, have joined their efforts with those of the laundresses of Paris, who, from time immemorial, have held their annual fête, beanfeast, and holiday at Mid-Lent. It was arranged that, while, as customary, a queen should be elected by each important laundry establishment, there should be a queen of queens. This honour should be conferred on the prettiest washerwoman of Paris, and she would become the centre of attraction of a great masquerade. This *fête* was celebrated last Thursday and, in consequence of its extraordinary success, suggests various questions affecting the public health, which is our reason for noticing this new departure in national customs. The procession of the laundress queen consisted of more than fifty chariots. Several hundred students in the most eccentric and amusing costumes formed the escort. It took seven hours to parade the streets of Paris, during which time immense crowds thronged the thoroughfares and in some places stood waiting for more than five hours. During all the night and afternoon battles of *confetti* raged throughout the city. Ordinary business was almost at a standstill; the whole population was given up to frolicsome amusement.

Apart from the fact that vast accumulations of people are always attended with some risk to health, there are special considerations suggested by this particular *fête*. It is needless to say that the wearing of fancy dresses in the open streets is not always free from the danger of chills, for these dresses are frequently of a very light description. This objection can be made to carnivals in all seasons. The more special question which these new customs bring forth is the throwing of handfuls of *confetti* in persons' faces. Of course this is an imitation of the Battle of Flowers at Nice, and of the sweets thrown in people's faces during the carnival at Rome. The Parisian *confetti* consist of small rounds of paper about a quarter of an inch in diameter and of all colours. When thrown they form a sort of spray or shower of variegated colours, which has a very pretty effect. Being extremely small and soft, these little pieces of paper cannot hurt and seem to be too large to easily penetrate the eye; but it costs some money to buy a sufficient provision. A tumblerful is sold for a halfpenny; but that is quickly thrown away in the wild combats that are fought at every instant. Soon the *confetti* lie heavy and thick on the ground, and then there is a strong temptation to pick them up and use them again. But in doing this small pebbles, dust and dirt are also picked up; the question, therefore, arises whether the streets should not be so watered as to render it impossible to pick up *confetti* that have already served. What this *confetti* warfare means can scarcely be realised except by those who have seen it; and there is not the slightest doubt that, as the renown of these *fêtes* spreads, people will travel from all parts of the world in order to participate in the new sport. Though the *confetti* are extremely light, it is estimated that about a million kilogrammes were sold and utilised last Thursday. One journalist declares that from the Grand Opera to the Port St. Martin, along the broad Boulevard, the *confetti* lay three centimetres thick the whole way. Then there are the *serpentins*, which consist of ribbons of coloured paper from half an inch to an inch in width and from fifty to one hundred and forty yards in length. These are rolled up and thrown at great distances; the ribbon, unfolding itself as it flies through the air, becomes entangled in the crowd, in the trees, and in the vehicles, occasioning a wonderful and picturesque confusion of colour which the slightest wind or movement agitates. It appears that 100 kilogrammes of paper yield on an average 3500 *serpentins*, and it is said that last Thursday 3,500,000

serpentins were sold. Taking the average length of each to be 75 metres, that makes 262,500,000 metres of paper ribbon displayed in the streets of Paris during the course of one single day—enough paper ribbon to encircle the world six times. All this paper, after being twisted round people's hats, necks, and bodies, or fastened round cabs, horses, dogs, hooked on branches of trees, and, in fact, thrown anywhere and everywhere, ultimately finds its way to the sewers, where it occasions no small embarrassment. Fortunately this year there was a heavy downpour of rain after the carnival, so that the obstruction in the sewers was more easily removed. We have still to see what will be the effect on the sewage farms of this enormous quantity of coloured paper; but what is, perhaps, more serious is the fact that, in some cases, instead of coloured paper an imitation of gold leaf was sold. This, entangled in ladies' hair and falling on their dresses, produced a pretty effect, and many persons were not a little flattered when thus treated to a shower of gold; but the substance, being much lighter and more powdery than mere paper, easily enters the eyes. On examination in THE LANCET Laboratory the "gold" leaf proved to consist of copper with thin tissue paper and a small quantity of oily matter; but it is important to add that the presence of arsenic could not be traced. While congratulating our neighbours on having added yet another *fête* and attraction to the many sources of amusement which bring visitors to Paris, we would urge that some precautions are necessary. Before the new custom becomes too firmly implanted to be altered, some measure should be taken to render the *confetti* purely harmless and to ensure that those which have been trod upon and mixed with the dust of the streets should not be used again.

THE NATIONAL ASSEMBLY AND THE DRAINAGE OF PARIS.

(FROM OUR SPECIAL CORRESPONDENT.)

CHAMBER OF DEPUTIES, FEB. 27TH.

A BILL has been introduced in the French National Assembly which will finally decide the system of drainage to be applied to the city of Paris. For many years the engineers have desired to drain direct into the sewers and to dispose of the sewage on farms, market gardens, or by simple irrigation. This proposal has been the subject of ardent debates and disputes which have lasted now about a quarter of a century. During that time important experiments have been made, the most notable being the market gardens of Gennevilliers. These extend over 800 hectares and have received as much as 43 000 cubic metres of sewage per annum per hectare. The results are most favourable. The sewage water, after it has been purified by exposure to the light, by filtration through the soil, and by the action of vegetation, has been found to contain less bacteria than the very pure spring waters of the Vannes and the Dhuis. While these extensive experiments of sewage disposal have been going forward outside Paris, efforts have been made to accustom the population of Paris to the idea of draining into the sewers. It is true that the sewers of Paris are very defective. There should be sewers to the length of 1150 kilometres, but there are only 900 kilometres actually constructed; these also are so imperfect that only half their total length is considered to be sufficiently well built to admit house drainage. Along the course of these 450 kilometres of well-built sewers householders have been gradually persuaded to drain direct into them. At first the proposal was energetically resisted, but of late years the new idea has made great progress, and there are now, in round numbers, 10,000 soil-pipes going direct into the sewers and draining 4000 houses. Then there are what is the next best thing, 34,000 *tinettes filtrantes*—that is, metallic pails, which allow the liquid sewage to overflow into the sewers, and only retain the solids. These *tinettes* are removed every week. In either case it is possible in such houses to build water-closets and efficiently flush the house drains. In all the other houses of Paris water-closets are forbidden, as they would cause the 64,000 cesspools and the 17,000 pails that still remain to overflow. It is now proposed to spend £2,200,000 in completing the sewerage of Paris; to enlarge the main sewers, to put new ones in the streets where they do not as yet exist, and to rebuild those that are defective. All the sewers of Paris, it is believed, will then be in a fit condition to receive not merely, as at present, the surface drainage, the rain water, and the kitchen waters, but also the soil from the house closets. The cesspools, the pails, and the *tinettes filtrantes* could then be abolished; but to replace these by water-closets with at least a two-gallon flush it would be necessary to still further augment the water-supply of Paris, and for this purpose it is proposed to expend a sum of £1,600,000. Finally, to purchase sufficient land and to carry out a system of irrigation that will be sufficiently extensive to absorb all the sewage of Paris and the suburbs, a sum of £1,600,000 is required. Some of this work is already done and some of the money required is provided out of a previous loan. The Bill before the House, therefore, does not comprise the total sum to be expended. The loan to be sanctioned amounts to £4,700,000, whereas the total sum required is £5,780,000.

Such, briefly, is the object of the Bill. On the whole, everyone seems convinced that the augmentation of the water-supply will be a benefit, and but few persons now object to draining direct into the sewers. The abolition of cesspools is an acknowledged necessity; but there is a great division of opinion as to the system of irrigation. In the department of the Seine et Oise, where most of the sewage would be utilised, there is considerable alarm. It is urged that the district is suitable for villa building and residential purposes, but that the sewage farms will frighten the wealthy people away. On the other hand, it is argued that the value of the land will be increased; that there will be an increase of population; that many more houses, if not villas, will be built; that agriculturists are as worthy of interest as the inhabitants of villas; and that the villa property on the banks of the Seine will greatly improve, as the river will no longer be polluted by sewage.

The debate in the Chamber of Deputies commenced on Saturday, Feb. 24th, and was continued on the 26th and 27th. M. Georges Berger, the organiser of several universal exhibitions, opened the proceedings by a speech against the Bill, and advocated in preference a larger loan, so that the main sewer could be prolonged from Paris to the sea, with the faculty of utilsing some of the waters for agricultural purposes on the way. Agriculture could not be tied down to take at all seasons the amount of water the sewers contained, especially when the land to be irrigated was very limited in extent. For Paris it was proposed to secure only 3500 hectares and to throw 40,000 cubic metres of sewage annually on each hectare. But at Berlin they only ventured to put 12,000 cubic metres of sewage on each hectare of sewage land (a hectare equals about two and a half English acres). In England the system had in many instances not proved successful. He also urged that when the cultivators had too much water they would simply let it run off direct into the river instead of purifying it by filtration through the soil. Both English and German engineers declared that there should be one acre of ground for every 200 inhabitants, this would equal 25 square metres per person, or 6250 hectares for Paris. M. Alphaud had spoken of 15,000 hectares, and M. Hervé-Magnon of from 50,000 to 60,000 hectares. M. Berger, however, adhered to the figure of 6250 hectares for Paris, so that there should not be more than 20,000 to 25,000 cubic metres of sewage per hectare per annum. He did not believe that the city of Paris would be able to procure so much land, and he urged that it could not manage safely with less. Fortunately, the land that had been purchased and which it was proposed to purchase was all in the direction of the sea. It seemed as if instinctively it had been felt that ultimately the sewer would have to be prolonged to the sea. The pumping stations to raise the sewage so as to enable it to flow as far as the sea would be very expensive; but the purchase of suitable land near Paris for sewage farms would probably be quite as costly. M. Berger also urged that many of the vegetables grown on the sewage farms were eaten raw. Were not these vegetables occasionally splashed by the fresh sewage with which they are watered, and did not this constitute a serious danger? M. Pasteur, speaking to the Council of Hygiene and Salubrity of Paris, had expressed his opinion in the following terms:—"It is proposed not to conduct to the sea the pathogenic germs of the numerous contagious diseases which decimate all our population, but to accumulate them each year more and more on fields situated at the gates of the great town; and these fields will be cultivated. It would be better if the fields remained uncultivated, for then you would no incur the risk of bringing back the germs to Paris." At Havre some cases of cholera had been traced to the eating of

vegetables from a garden which had been watered with contaminated water. M. Berger thought that the sewage farm of Gennevilliers had caused the cholera of 1892. He then went on to criticise the water-supply of Paris, which he thought insufficient.

Public Health and Poor Law.

LOCAL GOVERNMENT DEPARTMENT.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

Ampthill Urban Sanitary District.—The Notification Act has recently been adopted in this district, but no isolation accommodation has as yet been provided. Dr. Guthrie Stein made during 1893 a special inspection of the district as regards its provision for excrement and refuse disposal. As a result of this inspection he strongly condemns the privy system, which still exists in some parts, and he points out to the sanitary authority that the accumulation of human excrement near dwellings "tends to affect the health of the people in a variety of ways, short of such definite diseases such as typhoid and diphtheria, an epidemic of which alone seems to be regarded by some as a justification for action in sanitary matters." The ashpits in the district are, Dr. Stein states, badly constructed and neglected, and this being so we read with pleasure that the scavenging will in future be performed by the sanitary authority. The public sewers are, for the most part, obsolete, and expert advice has been called in with a view to their general reconstruction. There is a sewage farm connected with the present sewers, but the soil is so heavy that Dr. Stein has advised that the solids of the sewage should be strained off prior to its being turned on to the farm. The water-supply of the district is derived from wells sunk in the lower greensand formation; a large number of these wells appear to be polluted by the percolation of sewage from defective sewers into them. An engineer was called in by the sanitary authority to advise as to the water-supply, and in the course of the report which he subsequently issued he states that some of the wells ought to be closed immediately; indeed, he thinks "it is only the salubrity of the atmosphere and the numerous fir and pine trees in the neighbourhood that prevent an epidemic." It is somewhat difficult, however, to understand how an epidemic of some water-borne disease should be prevented by the agencies alluded to. In the same report the opinion is expressed that it is not necessary to obtain water "from a distance," and that "the whole solution of the problem of the water-supply lies in preventing the contamination that is now going on; then closing some of the worst wells, pumping out and cleaning out others." We cannot say that we entirely concur with these remarks, and we think that under the circumstances the safest remedy is to provide a public water-supply from some other source than the present wells. We must congratulate Dr. Stein upon his energetic action during the year.

Waltham Holy Cross Urban Sanitary District.—Mr. Damer Priest reports that the whole of the nineteen shallow wells which were quantitatively analysed by him during 1893 showed well-marked "pervious sewage contamination." All these wells were condemned, but owing to the fact that the mains of the East London Water Company do not extend as far as the houses supplied by the wells in question the order has not yet been enforced. It seems, too, that Copt Hall Green, an outlying hamlet of Waltham Abbey, has a deficient and inferior water-supply, the cottagers, with few exceptions, having to use pond or ditch water. Only one case of small-pox occurred in the district during the year; the patient was at once sent to the Highgate Fever Hospital, the total cost of isolation, disinfection, &c. in the case being £25. Some preliminary negotiations were entered into with the West Ham sanitary authority as to a joint small-pox hospital, but the proposal, it seems, came to nothing. Mr. Damer Priest reproduces the list of recommendations made to the sanitary authority last year, and he points out that, with the exception of a few houses being supplied with the East London Company's water, none of them have been carried out. Among the sanitary requirements of the district Mr. Damer Priest mentions an isolation hospital, a disinfecting apparatus, a better system of scavenging, and a much freer use of the East London Company's water.

Pudsey Urban Sanitary District.—Seventeen cases of small-pox, occurring in fifteen houses, were reported during 1893, and owing to the very thorough measures which were taken by the medical officer of health, Dr. Lovell Hunter, the disease in no case spread beyond the house in which it first broke out. The average cost of each case to the sanitary authority was £10 15s. Of the seventeen persons there was but one under fourteen years of age, and in that case vaccination had never been performed. At the Calverly joint hospital, owing to "the spread of small-pox to some of the other patients in the hospital, the small-pox building was separated from the other blocks by a boarding eight feet high, and a separate ambulance provided to be used for small-pox cases only." In addition to this, most stringent regulations have been drawn up for preventing the spread of small-pox infection. Among these regulations we notice the following: "All food for the small-pox wards must be placed immediately inside the enclosure in the presence of the curator or matron, and no utensil may be removed from the small-pox wards unless it has been kept for twenty minutes in boiling water, and such process of disinfection must be repeated when the utensils reach the administration block." With regard to the discharge of patients &c., it is enacted that "none of the persons employed in the small-pox wards may leave the enclosure unless they have undergone efficient disinfection, and convalescent patients must be similarly treated before they are discharged." We should be glad if, in the next annual report, Dr. Hunter would describe in detail the disinfection alluded to. The medical attendants are to arrange so as to visit the small-pox wards after seeing the other patients, and this, we fear, is a weak point in the defence, as the medical attendant may of course be at any moment called back to the fever wards to attend an urgent case. There are also regulations in force as to visitors, and one of them is as follows: "No pass shall be granted to any person not recently vaccinated, or who, in the opinion of the medical attendant in charge, is insusceptible to the disease." We think there must be a misprint in the last paragraph of this regulation. The regulations are, as a whole, very good ones, and we shall be interested to learn whether, in spite of these and the fence eight feet high, small-pox occurs among any of the other unvaccinated fever patients. Pudsey is supplied with water from the Bradford Waterworks, and Dr. Hunter states that, owing to the treatment of the moorland water with three grains of chalk to the gallon, lead poisoning has nearly disappeared from the district. Dr. Hunter has gone into the question very thoroughly, and has estimated week by week during the year the amount of lead in the water. He has contrasted in parallel columns the monthly averages for 1892 and 1893, showing that since the chalk treatment was adopted there has been an enormous reduction in the amount of lead taken up by the water. Among the offensive trades of the district is one connected with the scouring of cloths by means of human urine, which is apparently hoarded up by some of the public and sold at the rate of a penny for every six gallons. The odour likely to arise from the storage and transmission of the decomposing urine must be sufficiently obvious, and it seems doubtful whether an equally good result as regards scouring the cloth cannot be obtained by the use of chemicals. Dr. Hunter points out that if the urine is really necessary and the poor people are willing to supply it, the remainder of the public should at least be partially protected by the removal of the urine taking place at night. Dr. Horne, one of the Local Government Board Inspectors on the General Cholera Survey, visited Pudsey in July last and made certain recommendations to the sanitary authority. It would seem from Dr. Hunter's report that the sanitary authority would do well to at once carry out these recommendations. Dr. Hunter recently made an inspection of the privy accommodation of the factories in the district, and found a state of affairs which should be put an end to without delay.

Fife County Sanitary District.—The population of the county of Fife, exclusive of the burghs of Kirkcaldy, Dunfermline, and Dysart, was at the last census 128,204. Dr. Thomas Nasmyth, the county medical officer of health, went very thoroughly into the pollution of the River Leven during 1893, and in the course of the present year he proposes to devote his attention to the pollution of the Orr and Eden. With regard to the Leven, Dr. Nasmyth states that in addition to sewage pollution it is polluted by the effluents from bleach-

fields, paper works, flax mills, a wool mill, and a distillery, so that eventually the stream, which once held salmon, will now support no fish-life whatever. After giving a very interesting detailed description of each pollution, and considering the several schemes for purifying the river, Dr. Nasmyth states that the only one he can recommend is that for constructing an intercepting sewer to the sea, and making due provision for compensation water. The question of dairy supervision was also investigated by Dr. Nasmyth during 1893, and, as a result, he reports that in three of the four districts of the county the regulations in regard to the dairies are not sufficiently stringent; but in Dunfermline district they are all that could be desired. Types of dairies in the county are given, and in describing the small cowhouses Dr. Nasmyth points out that the cows are dirty and miserable looking, and the atmosphere hot and foul. In connexion with these places the milk-store is said to be situated sometimes in a kitchen and sometimes in a bedroom, or at least in a small closet in aerial communication with it. The condition of affairs in the large dairy businesses is very different to the above, and in addition to the most scrupulous cleanliness and ventilation of the cow-sheds and dairies the udders of the cows are washed with soap and water prior to milking, and the milker is compelled to wash her hands after the milking of each cow. As regards cholera the regulations in force are practically the same as those obtaining in England, and it is unnecessary to reproduce them here. In each district of the county arrangements have been made for the inspection of ships and for the isolation of any cases of cholera occurring on board. Dr. Nasmyth's report also contains an account of the sanitary condition &c. of each of the four districts in the county; but we have not space to notice them here.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In thirty-three of the largest English towns 6251 births and 4110 deaths were registered during the week ending March 3rd. The annual rate of mortality in these towns, which had been 18·7 and 20·0 per 1000 in the preceding two weeks, further rose last week to 20·5. In London the rate was 21·0 per 1000, while it averaged 20·2 in the thirty-two provincial towns. The lowest rates in these towns were 13·8 in Leicester, 14·2 in Swansea, 14·9 in Croydon and in Sunderland, and 15·6 in Portsmouth, to 25·2 in Oldham, 25·3 in Salford, 25·4 in Liverpool, 25·5 in Plymouth, and 33·1 in Wolverhampton. The 4110 deaths included 478 which were referred to the principal zymotic diseases, against 423 and 478 in the preceding two weeks; of these, 157 resulted from whooping-cough, 103 from measles, 85 from diphtheria, 45 from "fever" (principally enteric), 41 from scarlet fever, 36 from diarrhœa, and 11 from small-pox. No fatal case of any of these diseases occurred last week in Croydon, Brighton, or Halifax; in the other towns they caused the lowest death-rates in Bradford, Preston, and Leeds, and the highest rates in West Ham, Liverpool, Burnley, Birkenhead, and Wolverhampton. The greatest mortality from measles occurred in Norwich, Salford, Birkenhead, Leicester, and Wolverhampton; from scarlet fever in Huddersfield and Wolverhampton; from whooping-cough in Portsmouth, Sheffield, Plymouth, Bristol, and Cardiff; and from "fever" in Nottingham. The 85 deaths from diphtheria included 59 in London, 6 in West Ham, 5 in Manchester, and 3 in Nottingham. Seven fatal cases of small-pox were registered in Birmingham, and one each in London, West Ham, Bristol, and Bradford; but not one in any other of the thirty-three large towns. There were 84 cases of small-pox under treatment in the Metropolitan Asylum Hospitals and in the Highgate Small-pox Hospital on Saturday last, the 3rd inst., against 77, 78, and 81 at the end of the preceding three weeks; 19 new cases were admitted during the week, against 17 and 18 in the preceding two weeks. The number of scarlet fever patients in the Metropolitan Asylum Hospitals and in the London Fever Hospital, which had been 2387, 2270, and 2181 at the end of the preceding three weeks, was 2188 on Saturday last; 239 new cases were admitted during the week, against 199 and 180 in the preceding two weeks. The deaths referred to diseases of the respiratory organs in London, which had been 340 and 408 in the preceding two weeks, further rose to 413 last week, but were 83 below the corrected average. The causes of 74, or 1·8 per cent., of the deaths in the thirty-three towns were not certified, either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Portsmouth, Cardiff, Bradford, Leeds, Newcastle-upon-Tyne, and in eleven other smaller towns; the largest proportions of uncertified deaths were registered in West Ham, Birmingham, Preston, and Hull.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in the eight Scotch towns, which had been 19·2 and 20·6 per 1000 in the preceding two weeks, declined again to 19·6 during the week ending March 3rd, and was 0·9 per 1000 below the mean rate during the same period in the thirty-three large English towns. The rates in the eight Scotch towns ranged from 17·3 in Edinburgh and 17·7 in Paisley to 21·7 in Greenock and 25·2 in Dundee. The 558 deaths in these towns included 34 which were referred to whooping-cough, 11 to scarlet fever, 11 to diphtheria, 7 to diarrhœa, 5 to "fever," 2 to small-pox, and not one to measles; in all, 70 deaths resulted from these principal zymotic diseases, against 67 and 73 in the preceding two weeks. These 70 deaths were equal to an annual rate of 2·5 per 1000, which slightly exceeded the mean rate last week from the same diseases in the thirty-three large English towns. The fatal cases of whooping-cough, which had increased from 28 to 45 in the preceding three weeks, declined again to 34 last week, of which 15 occurred in Glasgow, 7 in Dundee, and 5 in Edinburgh. The 11 deaths referred to scarlet fever considerably exceeded those recorded in recent weeks, and were all registered in Glasgow. The fatal cases of diphtheria, which had been 9 and 12 in the preceding two weeks, were 11 last week, of which 6 occurred in Glasgow, and 3 in Edinburgh. Of the 5 deaths referred to different forms of "fever," 4 occurred in Glasgow. The 2 fatal cases of small-pox were registered in Leith. The deaths referred to diseases of the respiratory organs in these towns, which had been 122 and 127 in the preceding two weeks, declined again to 118 last week, and were 53 below the number in the corresponding week of last year. The causes of 48, or nearly 9 per cent., of the deaths in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 33·3 and 29·2 per 1000 in the preceding two weeks, rose again to 30·1 during the week ending March 3rd. During the past nine weeks of the current quarter the death-rate in the city has averaged 32·5 per 1000, against 21·7 in London and 18·8 in Edinburgh. The 202 deaths in Dublin during the week under notice showed an increase of 6 upon the number in the preceding week and included 14 which were referred to the principal zymotic diseases, against 23 and 14 in the preceding two weeks; of these 14 deaths, 7 resulted from whooping-cough, 4 from "fever," 2 from measles, 1 from diarrhœa, and not one either from small-pox, scarlet fever, or diphtheria. These 14 deaths were equal to an annual rate of 2·1 per 1000, the zymotic death-rate during the same period being 2·7 in London and 1·5 in Edinburgh. The deaths referred to different forms of "fever," which had been 10 and 5 in the preceding two weeks, rose again to 7 last week. The fatal cases of whooping-cough, which had been 3 and 5 in the preceding two weeks, were 4 last week. The 2 deaths from measles corresponded with the number in the previous week. The 202 deaths registered in Dublin last week included 33 of infants under one year of age and 52 of persons aged upwards of sixty years; the deaths of infants showed a slight increase, while those of elderly persons showed a further decline from those recorded in recent weeks. Five inquest cases and 2 deaths from violence were registered; and 85, or more than a third, of the deaths occurred in public institutions. The causes of 16, or nearly 8 per cent., of the deaths in the city last week were not certified.

VITAL STATISTICS OF LONDON DURING 1893.

Complete statistics relating to sickness and mortality during the year 1893 in each of the forty-one sanitary districts of London are summarised in the table on the following page. The mortality statistics relate to the deaths of persons actually belonging to the various sanitary districts, and are the result of a complete system of distribution of deaths occurring in the institutions of London among the various

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS OF LONDON DURING 1893.

(Specially compiled for THE LANCET.)

Sanitary areas.	Estimated population in the middle of 1893.	Notified Cases of Infectious Disease.											Deaths from Principal Infectious Diseases.											Deaths from all causes.	Death-rate per 1000 living.	Deaths of infants under one year to 1000 births.
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cholera.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.†	Whooping-cough.	Typhus fever.	Enteric fever.	Other continued fevers.	Diarrhœa.	Total.	Annual rate per 1000 persons living.			
LONDON	4,306,411	2813	36,901	13,694	22	3563	205	397	9700	86	67,481	15·7	186	1658	1587	3196	2327	5	675	21	3435	13,091	3·0	90,060	20·9	164
West Districts.																										
Paddington	120,421	68	778	289	1	67	5	18	240	—	1466	12·2	4	30	33	70	60	—	21	—	57	275	2·3	2141	17·8	150
Kensington	167,029	102	943	373	1	97	11	9	273	2	1811	10·8	10	21	52	84	65	—	17	—	100	348	2·1	2942	17·6	169
Hammersmith	103,044	17	665	279	—	67		18	185	1	1234	12·0	3	4	36	53	50	—	15	2	83	246	2·4	1872	18·2	160
Fulham	104,735	30	706	251	1	59	5	18	156	5	1231	11·8	2	12	31	64	82	—	17	—	132	342	3·3	2024	19·3	176
Chelsea	98,182	43	589	236	—	76	1	5	206	1	1157	11·8	1	23	32	52	68	—	17	2	73	268	2·7	1955	19·9	168
St. George Hanover-square	76,043	23	591	123	—	68	2	3	82	2	894	11·8	3	2	25	34	14	—	12	2	26	118	1·6	1228	16·1	133
Westminster	54,829	47	420	83	—	41	—	5	84	2	682	12·4	—	5	25	14	15	—	7	1	43	110	2·0	1290	23·5	188
St. James Westminster	24,000	52	113	46	—	22	3	5	34	—	272	11·3	1	4	2	14	8	—	6	1	7	43	1·8	474	19·8	146
North Districts.																										
Marylebone	139,726	179	913	401	2	94	3	10	379	2	1983	14·2	5	32	68	94	78	—	50	1	84	382	2·7	3192	22·8	151
Hampstead	73,380	14	516	166	—	35	3	5	78	—	817	11·1	2	1	20	38	6	—	8	—	22	97	1·3	948	12·9	102
St. Pancras	238,936	120	2589	784	—	109	3	24	656	5	4350	18·6	9	154	100	201	106	—	27	—	164	761	3·3	5138	22·0	172
Islington	327,919	122	2389	901	1	263	7	40	702	1	5026	15·3	2	129	94	200	197	1	47	1	259	930	2·8	6405	19·5	164
Hackney	240,584	65	2205	465	—	303	7	18	499	4	4426	18·4	4	57	74	206	165	—	53	1	161	724	3·0	4532	18·8	152
Central Districts.																										
St. Giles	38,641	73	238	78	—	32	—	2	98	—	521	13·5	4	6	14	22	18	—	6	—	23	93	2·4	925	23·9	131
St. Martin-in-the-Fields	14,034	11	102	27	—	6	—	—	9	—	155	11·1	2	1	2	8	2	—	1	—	5	21	1·5	298	21·2	188
Strand	23,788	32	140	76	—	11	—	—	22	—	281	11·8	1	2	19	22	11	—	1	—	12	68	2·9	713	30·0	219
Holborn	32,690	30	311	98	1	41	—	2	95	—	578	17·7	1	18	12	22	16	—	13	—	27	109	3·3	886	27·1	214
Clerkenwell	65,589	17	731	304	—	68	8	1	229	3	1361	20·8	—	79	30	76	51	—	10	—	73	319	4·9	1745	26·6	202
St. Luke	41,577	16	361	155	—	32	1	2	168	—	735	17·7	1	58	28	46	40	—	12	—	47	232	5·6	1282	30·8	174
City of London	35,870	27	299	68	1	27	1	—	76	3	502	14·0	3	11	8	11	4	—	—	1	10	48	1·3	843	23·5	132
East Districts.																										
Shoreditch	123,440	28	1008	514	1	117	4	10	317	4	2003	16·2	3	129	39	137	80	—	10	1	161	566	4·6	3153	25·5	178
Bethnal Green	129,020	79	1488	746	—	138	4	18	426	4	2903	22·4	7	83	71	136	60	—	25	—	145	527	4·1	3257	25·1	177
Whitechapel	75,178	49	811	208	1	62	—	9	216	—	1406	18·7	5	37	32	61	26	—	8	—	66	235	3·1	1916	25·5	168
St. George-in-the-East	45,493	53	485	240	—	44	1	5	112	1	941	20·7	1	32	14	62	23	—	4	—	85	221	4·9	1403	30·8	209
Limehouse	57,115	80	710	240	3	115	1	6	186	—	1341	23·5	8	21	35	61	64	1	18	—	61	269	4·7	1613	28·2	205
Mile End Old Town	108,041	115	1179	352	—	146	—	5	282	—	2079	19·2	8	39	40	80	44	—	29	—	121	361	3·3	2430	22·5	149
Poplar	109,141	217	1883	1149	1	390	36	10	566	1	4253	25·1	12	32	105	108	74	1	62	—	186	639	3·8	3905	23·1	109
South Districts.																										
St. Saviour Southwark	26,854	18	210	89	—	21	—	1	54	—	393	14·6	—	6	18	17	20	—	3	—	18	82	3·1	649	24·2	154
St. George Southwark	59,953	80	594	189	1	46	2	4	144	1	1061	17·7	7	35	42	45	74	—	13	—	70	286	4·8	1700	28·4	206
Newington	117,672	64	1101	478	—	66	1	6	284	1	2001	17·0	6	34	51	93	109	—	13	—	126	432	3·7	2856	24·3	176
St. Olave Southwark	12,903	11	117	32	—	6	—	1	36	—	203	15·7	1	1	6	7	3	—	2	—	9	29	2·2	312	24·2	141
Bermondsey	84,246	55	570	229	1	47	1	5	188	—	1096	13·0	4	36	30	80	46	1	8	—	70	275	3·3	2004	23·8	168
Rotherhithe	40,020	90	302	106	—	29	3	4	80	—	614	15·3	13	10	16	31	33	1	8	—	25	136	3·4	927	23·2	165
Lambeth	280,284	103	2247	829	3	159	59	27	581	30	4038	14·4	5	113	69	185	151	1	36	4	197	761	2·7	5749	20·5	149
Battersea	158,105	116	1491	660	2	128	9	19	432	1	2858	18·1	12	93	40	167	114	—	22	—	122	570	3·6	2980	18·9	169
Wandsworth	172,143	34	1291	453	1	118	5	20	380	2	2304	13·4	1	33	53	113	81	—	18	1	119	422	2·5	2617	15·2	142
Camberwell	245,143	143	1854	515	—	141	5	23	486	8	3125	12·8	11	83	73	13	109	—	27	—	186	619	2·5	4724	19·3	161
Greenwich	171,120	183	1469	491	—	115	5	22	357	—	2642	15·4	13	103	71	147	100	—	28	1	143	606	3·5	3510	20·5	165
Lewisham (excluding Penge)	77,473	26	567	207	—	45	—	8	171	—	1024	13·2	5	19	11	53	8	—	9	1	29	135	1·7	1133	14·6	128
Woolwich	41,864	61	258	27	—	28	2	1	50	2	429	10·2	4	14	16	8	20	—	5	1	33	101	2·4	842	20·1	100
Plumstead	94,596	60	765	237	—	44	3	10	132	—	1251	13·2	2	53	48	85	32	—	11	—	54	285	3·0	1547	16·4	137
Port of London	—	10	2	—	—	20	—	—	2	—	34	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Including 668 cases of membranous croup

† Including deaths from membranous croup.

sanitary districts in which the patients had previously resided. Without the distribution of these deaths, especially of those resulting from zymotic diseases, no really trustworthy data can be secured upon which to calculate reliable rates of mortality. With regard to the notified cases of infectious diseases in London during 1893, it appears that the number of persons reported to be suffering from one or other of the nine diseases in the accompanying table was equal to 15·7 per 1000 of the population, estimated at 4,306,411 persons in the middle of the year. In the preceding year the rate was equal to 10·8 per 1000. Among the various sanitary districts the lowest rates were 10·2 in Woolwich, 10·8 in Kensington, 11·1 in Hampstead and in St. Martin-in-the-Fields, 11·3 in St. James Westminster, and 11·8 in Fulham, Chelsea, St. George Hanover-square, and Strand; the highest rates were 18·6 in St. Pancras, 18·7 in Whitechapel, 19·2 in Mile End Old Town, 20·7 in St. George-in-the-East, 20·8 in Clerkenwell, 22·4 in Bethnal Green, 23·5 in Limehouse, and 25·1 in Poplar. The prevalence of small-pox in London showed a further marked increase during 1893, the cases notified being 2813, against 114 and 423 in the preceding two years; of these, 217 belonged to Poplar, 183 to Greenwich, 179 to Marylebone, 143 to Camberwell, 122 to Islington, 120 to St. Pancras, 116 to Battersea, and 115 to Mile End Old Town sanitary districts. The number of small-pox patients admitted into the Metropolitan Asylum Hospitals during 1893 was 2481, and 82 remained under treatment at the end of the year. The prevalence of scarlet fever in London in 1893 showed a further marked increase; this disease was proportionally most prevalent in St. Pancras, Hackney, Clerkenwell, Bethnal Green, Whitechapel, St. George-in-the-East, Limehouse, and Poplar sanitary districts. During the year under notice as many as 14,640 scarlet fever patients were admitted into the Metropolitan Asylum Hospitals; the number under treatment, which had been 3168 at the beginning of the year, was 2371 at the end of December last. Diphtheria also showed greatly increased prevalence during 1893, the cases notified numbering 13,694, against 5907 and 8349 in the preceding two years; this disease showed the highest proportional prevalence in Hackney, Clerkenwell, Shoreditch, Bethnal Green, St. George-in-the-East, Limehouse, Poplar, Newington, and Battersea sanitary districts. The Metropolitan Asylum Hospitals contained 287 diphtheria patients at the beginning of 1893; 3189 new cases were admitted during the year, and 283 remained under treatment at the end of December last. Enteric fever was proportionally most prevalent in Hackney, Limehouse, and Poplar sanitary districts. The number of enteric fever patients in the Metropolitan Asylum Hospitals, which had been 87 at the beginning of 1893, was 103 at the end of December last; 734 patients were admitted during the year, against 623 during 1892. Erysipelas showed the highest proportional prevalence in Marylebone, St. Pancras, Holborn, St. Luke, Bethnal Green, Limehouse, and Poplar sanitary districts. Of the 397 notified cases of puerperal fever 40 belonged to Islington, 27 to Lambeth, 24 to St. Pancras, 23 to Camberwell, and 22 to Greenwich sanitary districts.

During the year under notice the deaths of 90,060 persons belonging to London were registered, equal to a rate of 20·9 per 1000, against 21·1, 21·1, and 20·3 in the preceding three years 1890–91–92. In the various sanitary districts the lowest death-rates were 12·9 in Hampstead, 14·6 in Lewisham (excluding Penge), 15·2 in Wandsworth, 16·1 in St. George Hanover-square, 16·4 in Plumstead, and 17·6 in Kensington; the highest rates were 27·1 in Holborn, 28·2 in Limehouse, 28·4 in St. George Southwark, 30·0 in Strand, and 30·8 in St. Luke and in St. George-in-the-East. Taking the five groups of sanitary districts, the rate of mortality during 1893 was equal to 18·6 per 1000 in the west, 19·9 in the north, 19·9 in the south, 25·0 in the east, and 26·6 in the central districts. To the principal zymotic diseases 13,091 deaths were referred in London during the year under notice; of these, 3436 resulted from diarrhœa, 3196 from diphtheria, 2327 from whooping-cough, 1658 from measles, 1587 from scarlet fever, 701 from different forms of "fever" (including 5 from typhus, 675 from enteric fever, and 21 from simple and ill-defined forms of fever), and 186 from small-pox. These 13,091 deaths were equal to an annual rate of 3·0 per 1000, against 2·9, 2·3, and 2·8 in the preceding three years 1890–91–92. Among the various sanitary districts the zymotic death-rates ranged from 1·3 in Hampstead and in City of London, 1·5 in St. Martin-in-the-Fields, 1·6 in St. George Hanover-square, 1·7 in Lewisham, and 1·8 in St. James Westminster, to 4·6 in Shoreditch, 4·7 in Limehouse, 4·8 in St. George Southwark, 4·9 in Clerkenwell and in St. George-in-the-East, and 5·6 in St. Luke. The 186 fatal cases of small-pox registered in London during 1893 almost corresponded with the corrected average number in the preceding ten years; of these, 13 belonged to Rotherhithe, 13 to Greenwich, 12 to Poplar, 12 to Battersea, 11 to Camberwell, and 10 to Kensington sanitary districts. The 1658 deaths referred to measles were very considerably below the corrected average; among the various sanitary districts this disease showed the highest proportional fatality in St. Pancras, Clerkenwell, St. Luke, Shoreditch, Bethnal Green, and St. George-in-the-East. The 1587 fatal cases of scarlet fever were as many as 450 above the corrected average; this disease was proportionally most fatal in Strand, St. Luke, Limehouse, Poplar, and St. George Southwark sanitary districts. The 3196 deaths referred to diphtheria exceeded the number in any year on record, and were considerably more than double the corrected average; among the various sanitary districts this disease showed the highest proportional fatality in Strand, Clerkenwell, St. Luke, Shoreditch, Bethnal Green, St. George-in-the-East, Limehouse, Poplar, Bermondsey, Battersea, and Plumstead. The 2327 fatal cases of whooping-cough were 446 below the corrected average; this disease was proportionally most fatal in Clerkenwell, St. Luke, Limehouse, St. George Southwark, and Newington sanitary districts. The 701 deaths referred to different forms of "fever" were slightly below the corrected average; there was no marked excess of "fever" mortality last year in any of the sanitary districts. The 3436 fatal cases of diarrhœa were 349 above the corrected average; among the various sanitary districts this disease showed the highest proportional fatality in Fulham, St. Luke, Shoreditch, St. George-in-the-East, and St. George Southwark. In conclusion, it may be stated that the mortality in London during 1893 from scarlet fever, diphtheria, and "fever" showed an excess, while that from each of the other zymotic diseases was below the average.

Infant mortality in London last year, measured by the proportion of deaths under one year of age to births registered, was equal to 164 per 1000, the average proportion in the preceding ten years having been 153 per 1000. The rates of infant mortality in the various sanitary districts ranged from 102 in Hampstead, 128 in Lewisham, 131 in St. Giles, 132 in London City, and 133 in St. George Hanover-square, to 202 in Clerkenwell, 205 in Limehouse, 206 in St. George Southwark, 209 in St. George-in-the-East, 214 in Holborn and 219 in Strand.

THE SERVICES.

MOVEMENTS OF THE MEDICAL STAFF.

SURGEON-MAJOR A. E. HAYES, D.S.O., late Secretary to the Principal Medical Officer, Netley, has proceeded to Aldershot for duty. Surgeon-Captain Bruce, Assistant Professor of Pathology in the Army Medical School, Netley, proceeds on leave from the 13th to the 31st inst. inclusive. Brigade-Surgeon-Lieutenant-Colonel Catherwood has been posted to the Home District for duty on return from foreign service. Surgeon-Major Browne has been transferred from Glasgow to Limerick. The appointment of Secretary and Registrar at the Royal Victoria Hospital, Netley, in succession to Surgeon-Major Hayes, who goes to Aldershot, has been conferred upon Surgeon-Major Pope. Surgeon-Captain Fowler has been appointed to the Thames District on return from foreign service.

ARMY MEDICAL STAFF.

Surgeon-Captain Richard C. K. Laffan to be Surgeon-Major (dated March 7th, 1894.)

INDIA AND THE INDIAN MEDICAL SERVICE.

The undermentioned gentlemen, notified in THE LANCET of Feb. 3rd as having been successful at the London and Netley examinations for Her Majesty's Indian Medical Service, have been appointed Surgeon-Lieutenants as follows: *Bengal:* George Lamb, Henry Burden, John Fisher, Edward Surman Peck, Charles Harford Evans, Stanley Arthur Harriss, Ewan Cameron MacLeod, and Charles Thomson. *Madras:* Alfred Eugene Berry and Herbert St. John Fraser. *Bombay:* Bernard Henry Frederick Leumann and Hugh Bennett. Surgeon-Lieutenant-Colonel B. Franklin (Bengal) is appointed Surgeon on the personal staff of His Excellency the Viceroy. Surgeon-Major R. Macrae, Civil Surgeon of

Puri, is appointed to act as Civil Surgeon of Gaya until further orders from the date on which he took over the charge of those duties. Surgeon-Captain F. C. Clarkson, Officiating Civil Surgeon of Gaya, is appointed to act as Deputy Sanitary Commissioner, Western Bengal Circle. Surgeon-Captain C. N. Bensley is appointed to act as Civil Surgeon of Rangpur. Brigade-Surgeon-Lieutenant-Colonel J. C. G. Carmichael, M.D., I.M.S., Bengal Establishment, is granted the temporary rank of Surgeon-Colonel whilst officiating as Principal Medical Officer, Presidency District, consequent on the retirement of Surgeon-Colonel G. C. Chesnaye, Principal Medical Officer, Lahore District. Surgeon-Lieutenant-Colonel D. Wilkie, M.B., Statistical Officer to the Government of India in the Sanitary and Medical Departments, has leave for one year. Surgeon-Lieutenant-Colonel A. F. Dobson, M.B., I.M.S. (Madras), Residency Surgeon, Bangalore, has leave for three months.

NAVAL MEDICAL SERVICE.

Surgeon William George Kynaston Barnes, M.D., has been promoted to the rank of Staff-Surgeon in Her Majesty's Fleet. Surgeon Martin Henry Atock, M.D., has been permitted to withdraw from Her Majesty's Naval Service, with a gratuity.

VOLUNTEER CORPS.

Artillery: 1st Dorsetshire (Southern Division Royal Artillery): Hubert Houssemayne Du Boulay, Gent., to be Surgeon-Lieutenant.—1st Ayrshire and Galloway: Samuel Archibald David Gillespie, M.B., to be Surgeon-Lieutenant.—*Rifle:* The Queen's Rifle Volunteer Brigade, the Royal Scots (Lothian Regiment): James Aitken Clark, M.B., to be Surgeon-Lieutenant.—1st Volunteer Battalion, the Prince of Wales's Own (West Yorkshire Regiment): Surgeon-Lieutenant G. D. Todd to be Surgeon-Captain.—3rd Volunteer Battalion, the Welsh Regiment: William Watkins Jones, M.B., to be Surgeon-Lieutenant.—14th Middlesex (Inns of Court): Charles Joseph Arkle, M.D., to be Surgeon-Lieutenant.—24th Middlesex: Alfred Eddowes, M.D., to be Surgeon-Lieutenant.—3rd Volunteer Battalion (Bedfordshire Regiment): Surgeon-Lieutenant-Colonel H. F. Holland has been nominated for Brigade-Surgeon-Lieutenant-Colonel of the Home Counties Brigade.

ARMY RECRUITING.

According to the report just published the recruiting for the army for the past year (1893) is very satisfactory. The infantry of the line has been recruited up to its authorised establishment. The physique of the militia recruits is stated to be improving, together with that of the regular army, where, especially in the Foot Guards and cavalry of the line, there has been marked improvement. This state of things is, no doubt, attributable, to some extent, to the difficulty in obtaining employment in civil life on the part of young men, to the greater inducements held out by the army in the way of better barrack accommodation, feeding, and greater attention paid to the comfort of the soldier of late years, whilst serving actually with the colours, but most of all to the organisations which exist for providing discharged soldiers with employment. It is earnestly to be hoped that eventually Government may be able to provide all soldiers who have served twelve years with employment of some kind on their discharge from the army.

THE LADY DUFFERIN FUND.

Lady Elgin seems to have held her first central committee meeting in connexion with the above Fund soon after the arrival of the new Viceroy at Government House, Calcutta. Lieutenant-General Brackenbury, Sir A. MacDonnell, Surgeon-Lieutenant-Colonel Franklin, and other members were present. A resolution was passed expressive of the loss which the association had sustained by the departure of the Marchioness of Lansdowne, who took great interest in the Fund and made frequent visits to its hospitals in all parts of India.

Scarlet fever is stated to have broken out at Keyham Naval College, Devonport. Some of the students have been removed to the Naval Hospital, and others have been placed under observation.

PRESENTATION.—Mr. John Lewis Owen, L.R.C.P. Lond., M.R.C.S., who for many years resided at Treherbert, has been the recipient from the miners and tradesmen of that district of an illuminated address and a valuable box of surgical instruments.

Correspondence.

"Audi alteram partem."

THE SENTIMENT OF OBITUARY NOTICES.

To the Editors of THE LANCET.

SIRS,—At the annual meeting of the Royal Medical and Chirurgical Society on Thursday last, I listened with pleasure and profit to the pro-President's interesting sketch of the lives of Sir Andrew Clark and Dr. Charcot. He expressed an opinion, however, so entirely contrary to the old traditions and, as I believe, to the best interests of the society and of the profession that I venture with all respect to him to call it in question. He doubted the expediency of continuing the biographical sketches of the Fellows whose loss the society had had to deplore during the previous year on the ground of the difficulty of ascertaining facts concerning them, and also on the other ground, scarcely reconcilable with it, that sufficient mention of them appeared in the medical journals. Accordingly all but two were passed over with the bare mention of the date of their birth, that of their joining the society and of their death. I remember the names of two of our late Fellows, with neither of whom I had any acquaintance: the one died in his prime, having achieved great success, a hospital surgeon, a teacher of repute, and a respected practitioner of his art; the other, a young man just entering on life, who had done so well that all looked with confidence to his future distinction, when

> "Comes the blind Fury with th' abhorred shears
> And slits the thin-spun life."

Surely, to name no others, there were in these two lives themes that were well worth a moment's pause. "Alas! my brother," seems to me the least that could be said. In olden time the members of a guild followed each one who died to his grave, and gave expression to their sense of his worth and of their bereavement. Our society is a guild too, "an association," as the law defines it, "having laws and orders made by itself, in virtue of authority of the prince to that effect."

When, once a year, we meet to take stock of the work our guild has done, "the aim of which is sincerely to give a true account of the gift of reason for the benefit and use of man," we are surely bound to take some notice of those the fruits of whose labours we inherit, and not to pass by their names and leave them to the casual mention in the medical journals, as though we had not some special interest in them and did not owe many of them some special debts of gratitude. It matters little that the date of birth and trivial domestic incidents should be given correctly. The man himself—what he was, what he did, where he succeeded, where he failed; success and failure alike estimated, not in the common coin of the world's mintage: these are surely matters that may well engage the attention of the society, and the judgment passed on them by such men as my friend the pro-President would be ratified by all, and by none more heartily than by

Your faithful servant,

CHARLES WEST, M.D.

Evelyn Mansions, Carlisle-place, S.W., March 5th, 1894.

ROYAL MEDICAL BENEVOLENT COLLEGE.

To the Editors of THE LANCET.

SIRS,—On behalf of the council of the Royal Medical Benevolent College we earnestly appeal for aid to enlarge the chapel, which will no longer accommodate the pensioners, the pupils, and the staff. It is absolutely necessary to put in hand with as little delay as possible the requisite enlargement of the building, the cost of which will amount to about £3000. No further extension of the school can take place until this want is supplied. It is intended, with the direct sanction and approval of Lady Derby, to associate the name of Earl Derby, our late president, with a part of this addition. A transept will be especially associated with the past pupils of the college, and it is intended that it shall be practically a memorial transept in which shall be placed tablets or brasses in memory of old pupils who have distinguished themselves. The present pupils and the members of the staff have undertaken to provide a new organ in recognition of the unswerving

devotion of the Rev. Dr. Rowton to fostering a taste for music in the college throughout a long series of years.

We shall be grateful for any donations or subscriptions. Moneys so given will confer the same privileges as if given for the general purposes of the college. An erroneous impression is prevalent that the munificent legacy received by the college under the will of the late Mr. Pugh has improved the financial position of the institution. This is not the fact. The income derived from this source must be entirely devoted to increase the number of non-resident pensioners, an extension of their charitable work which the council most gratefully undertake.

We beg to append a list of those who have already contributed to the Chapel Fund.

We are, Sirs, yours faithfully,

C. HOLMAN,
Treasurer to the College;
HENRY MORRIS,
Treasurer to the Chapel Fund.

Soho-square, London, W., March 5th, 1894.

EPSOM COLLEGE CHAPEL FUND.

LIST OF CONTRIBUTIONS.

Alexander, Mrs. W. C.	£5	0	0
Allfrey, J. O., Esq.	2	2	0
Anonymous	105	0	0
Ashby, Dr. and Mrs. Alfred	5	5	0
Ashcombe, Lord	100	0	0
Ashwell, A. H., Esq.	1	1	0
Ayling, Dr. A. H. W.	1	1	0
Badham, Mrs.	3	0	0
Barlow, Mrs. A. A.	1	1	0
Banks, Dr. W. M.	3	3	0
Batt, Miss Barbara H.	10	10	0
Baxter, Mrs.	10	10	0
Bowes, W. H., Esq.	1	1	0
Brewer, R. E. Wormald, Esq.	10	10	0
Broadbent, Sir W., Bart., M.D.	10	10	0
Butterworth, J. W., Esq.	3	3	0
Byass, R. N., Esq.	10	10	0
Cadge, W., Esq.	10	10	0
Clark, Sir Andrew, Bart., M.D.	21	0	0
Clark, Andrew, Esq.	10	10	0
Collins, F. Stratford, Esq.	10	10	0
Corbett, J., Esq., J.P.	1	1	0
Corbett, Mrs.	3	0	0
Corsellis, Miss Marion J.	31	10	0
Croft, G., Esq.	25	0	0
Croft, Mrs.	10	10	0
Croft, John, Esq.	10	10	0
Cumberbatch, A. E., Esq.	10	10	0
Deacon, W. S., Esq.	10	10	0
De Tatham, Surgeon-Major H., M.D.	1	1	0
Durham, A. E., Esq.	2	2	0
Elcum, Rev. C. C.	10	10	0
Elliot, Dr.	1	1	0
Fayrer, Sir Joseph, K.C.S.I.	5	0	0
Fowler, R. S., Esq.	2	2	0
Freeman, R., Esq.	2	2	0
Freshfield, Miss	1	11	6
Goodhart, Dr.	10	10	0
Gould, A. Pearce, Esq.	10	10	0
Growse, W., Esq.	1	1	0
Hart-Smith, Rev. T. N.	25	0	0
Hatfield, G., Esq.	5	5	0
Hayward, M. C., Esq.	1	1	0
Hemming, Sir A. W. L., K.C.M.G.	10	10	0
Holman, Dr.	25	0	0
James, W., Esq.	2	2	0
Jenner, Sir William, Bart., G.C.B.	£10	10	0
Jowers, Mrs.	50	0	0
Leigh, Wm., Esq.	1	1	0
Lister, Sir Joseph, Bart.	20	0	0
Lowndes, Miss	0	10	0
Manvers, Earl	5	0	0
Martin, Miss	2	2	0
Martin, Miss (second donation)	3	3	0
Montefiore, Mrs.	10	10	0
Moore, G. F., Esq.	10	10	0
Morris, Henry, Esq.	21	0	0
Napper, A. A., Esq.	10	10	0
Oldaker, F. A., Esq.	1	1	0
Ord, Dr. W. M.	10	10	0
Paget, Sir James, Bart.	10	10	0
Pickersgill-Cunliffe, Mrs.	10	10	0
Pollard, Bilton, Esq.	3	3	0
Powell, Dr. Douglas	10	10	0
Rivington, C. R., Esq.	3	3	0
Rosebery, Earl of	50	0	0
Saunders, Sir Edwin	10	10	0
Secretan, L., Esq.	1	1	0
Secretan, the Misses	5	0	0
Sloman, Rev. A.	1	1	0
Smiles, C. L., Esq.	10	10	0
Smith, Thos., Esq.	10	10	0
Stephenson, Sydney, Esq.	1	1	0
Stewart, Sir Michael Shaw, Bart.	5	0	0
Stilwell, George R., Esq.	1	1	6
Stocker, Dr. Sherwood	3	0	0
Surrey, the High Sheriff of, pro J. Colman, jun., Esq. (third donation)	10	10	0
Tayler, H. P., M.B.	1	1	0
Taylor, W. Bramley, Esq.	3	3	0
Taylor, C. R., Esq.	1	1	0
Thornton, Knowsley, Esq.	25	0	0
Thornton, the Hon. Mrs. Knowsley	25	0	0
Thursfield, Dr. W.	1	1	0
Wagstaffe, W. W., Esq.	1	1	0
Walford, Mrs.	2	2	0
Walker, Mrs. Louisa	5	5	0
Warren, Rev. John	2	0	0
"	3	0	0
Watson, Mrs. Gordon	5	5	0
Webster, Sir R., Q.C., M.P.	10	10	0
Wynter, Dr.	10	10	0

"A NEW TREATMENT AND POSSIBLE CURE FOR CANCER."

To the Editors of THE LANCET.

SIRS,—May I say, in reference to two previous letters of mine on the subject of a suggested use of papain in conjunction with an iodide of that coal-tar derivative arbitrarily called "thalline"—but which is really a tetrahydroparamethyloxychinoline—that I have, as the result of a now fairly large experience, arrived at the conclusion that it is this last-mentioned body which produces the observed effects. I do not think the papain has any appreciable share in the production of the improvement manifested.

This is how the matter now stands. The cases of scirrhus in which the administration of the periodide was tried some four years ago, and in which the tumours then slowly disappeared, have not relapsed. Cases of malignant disease of the uterus, of the rectum, and some cases in which ulceration had commenced or in which there had been a return of the growth in or near cicatrices in cases which had been operated upon have not benefited. It is, therefore, obviously open to any surgeon to affirm that in the instances in which I have obtained good results I have not had to deal with genuine cancer. Nevertheless, I adhere to my belief that the cases which have recovered under this treatment were really malignant. Some recent cases have been strikingly self-evident, and it has been remarkable that the tumours have decreased slowly—as in one instance, the notes of which lie before me, from the dimensions of a hen's egg, somewhat flattened, to that of a small bean in three months, and then, in another month, disappeared. I have given "in pill form" periodotetrahydroparamethyloxychinoline in four-grain doses, with a grain of musk—or one-twentieth of a grain of the hydrochlorate of pilocarpine when the skin was very dry and inactive—every second or third hour of the day throughout the treatment, and *nothing else*. In some cases this has extended over five or even six months, but the progress has been so satisfactory and the general health has so improved that the patients have been quite willing to put up with the continuous medicine taking. One of the earlier tokens of amendment has been a better colour of the skin, the "lemon-yellow tinge" passing away and the hue of health being substituted. There has been in some instances marked darkening of the urine, but in no single case have I observed any disturbance of the stomach or debility; the appetite has, indeed, improved. The spectroscope has often revealed a marked development of the normal urobilin line, but not of the pathological variety of that spectrum; nor have I noticed hæmoglobin bands, although I am always on the watch for them.

My theory of the effect produced is destruction of the locally proliferating and the wandering leucocytes. It is not a little remarkable, and it appears to me to be at least confirmatory of my theory—that leucocythæmia, gout, osteo-arthritis, and cancer are different developments of the same initial fault, namely, aberrant growth and multiplication, with morbid activity of the protoplasmic leucocytes—that in all these maladies there is a marked increase in the output of uric acid. In myelogenous leukæmia, for example, O. Schultzen found as much as 4·5 grammes of uric acid in the urine in the twenty-four hours. In cancer there are frequent paroxysmal outbursts of uric acid corresponding with special periods of activity in the growths; and I believe they are due to the augmented metabolism of leucocytes, which recent researches have shown to be the source of uric acid production. Let this be accepted or not as a working theory: all I ask is that practitioners who have cases of well-diagnosed carcinoma in which operation is either impossible, inexpedient, or declined by patients, will try my method. It cannot do harm, and it may do good. I shall be happy to give anyone the full results of my experience, and glad to have it corrected or confirmed, as the event may prove, for I am certainly at this moment under the impression that in cases in which no operation has disturbed the development and ulceration has not taken place (surgeons will say in the very cases in which diagnosis is impossible and doubt must exist) there is a reasonable prospect of success.

I am, Sirs, yours truly,

Hanover-square, W., Feb. 24th, 1894. MORTIMER GRANVILLE.

"MORTALITY FROM CANCER."

To the Editors of THE LANCET.

SIRS,—Reconsideration of this subject confirms me in the opinion that the British statistics, even when supplemented by the Frankfort figures, are too incorrect to form the basis of an inquiry whose object is to determine how far the increase in the number of registered deaths from cancer indicates a real increase of the disease in the British Isles. The great majority of those who have studied Mr. King's and Dr. Newsholme's paper will, I believe, agree with me. The publication of this paper has, however, been very valuable as showing there are reasons to suppose that faulty diagnosis and registration have exaggerated, in a far greater degree than was formerly suspected, any increase which may have occurred. In this matter I have preferred to accept Mr. King's interpretation of the statistics expressed by the curves he has drawn rather than attempt to form conclusions upon the figures myself. I am at a loss to understand why your

correspondent, Dr. Walters, persists "in pointing out" that I have "missed the point of" or "failed to grasp" an argument which is based upon the merest elementary mathematical principles. My contention is that the argument is inapplicable to the rough British statistics.

I am, Sirs, yours faithfully,

March 6th, 1894. THOS. GLOVER LYON.

"SALINE ENEMATA IN THE TREATMENT OF HÆMORRHAGE."

To the Editors of THE LANCET.

SIRS,—In an annotation in THE LANCET of Feb. 24th you give an extract from the *Allgemeine Wiener Medicinische Zeitung* wherein Dr. Warman "draws attention to a new method which he has employed for the administration of salt solution after severe hæmorrhage." Now, what I wish to point out most emphatically is that Dr. Warman's method is not a new one, as I first had the honour of drawing the attention of the profession to this method in THE LANCET of Nov. 3rd, 1888, under the heading of "An Additional Treatment of Post-partum Hæmorrhage," which article I am happy to say induced a large number of practitioners to try it in the above cases as well as in those cases of surgical operation involving a severe loss of blood. Again, in THE LANCET of June 18th, 1892, I more particularly emphasised the points Dr. Warman now puts forward as to its value in the majority of cases over intra-venous injection—viz., that no special apparatus is required, an ordinary enema-syringe or a piece of rubber tubing and a funnel being all that are needed. Moreover, in most cases of post-partum hæmorrhage I take it that the medical attendant would be single-handed, in which case most of his attention would be devoted to the requisite kneading of the uterus or compression of the aorta, which in my experience is scarcely ever to be entrusted to a so-called nurse—usually a neighbour called in to look after the house—while the delicate operation of inserting a cannula into a vein is performed. Again, when this is done the most serious difficulty of all arises—viz, that after boiling the water to free it from germs there is not a single utensil in the house fit to receive it, and, if one starts to sterilise jugs &c., by the time that has been accomplished the patient would be dead. Dr. Warman points out also the serious risk in intra-venous injection of over-diluting the blood and thus destroying the red corpuscles—a risk, as he truly points out, which is entirely absent from the rectal method. Dr. Spencer, in answer to my letter of June 18th, 1892, says "that there is good reason to believe that in the collapse attending *severe* hæmorrhage rapid absorption does not take place from the intestinal tract." That this holds good for the stomach I will allow; but in my own cases (happily few) and in the cases I have seen treated by rectal injections at University College Hospital absorption has been most rapid, as evidenced by the improved fulness of the pulse and general condition of the patient; so against Dr. Spencer's dictum I will put forward the following. Dr. Warman states in the above paper that he thinks the fluid is entirely absorbed in less than five minutes; he says that "the results surpassed all expectations."

A few other cases which have been published, and which I am enabled to refer to, are as follows: Dr. Nicholson[1] said he was called to a case of abortion and "found the patient in a deplorable condition from the acute anæmia. The pulse was 140 to 150, small, running, and occasionally irregular." She complained of want of air, was unconscious at times, and had constant retching. The patient later became worse, even after raising the foot of the bed and bandaging the legs. He then employed an enema of a pint of water with a drachm of salt added. He next states that "the effect was extremely beneficial, for within twenty minutes the pulse fell to 120, the colour improved, and the sickness and faintness almost entirely disappeared." In conclusion, he states: "I feel confident that the saline enema saved the patient's life."

Dr. Reynolds[2] states that he used the injections in two cases of profuse post-partum hæmorrhage. "It was followed in each case by prompt improvement of the pulse, first in quality and then in frequency." Dr. Fortescue[3] quotes a case of a man suffering from hæmatemesis, in which an enema of a quart of water was used in order to get the bowels to act; none of it returned, "but the patient expressed himself as feeling stronger after the injection." I quote this case as showing that the fear I expressed in my first letter of having large injections rejected by the bowel is groundless, and, indeed, ever since the first occasion, I have used injections of about a pint at a time.

My object in giving the above cases is to remove the objection so commonly urged against the more general use of saline enemata—viz., that the bowel does not rapidly absorb them. This has been taught for years, but *experientia docet*, and, unless a number of observers are grossly mistaken, the sooner the old idea is eradicated the better, in order that a method capable of universal use and useful in preserving life under critical circumstances may be adopted, to the exclusion of such risky procedures as intra-venous and intra-abdominal injections.—I am, Sirs, yours faithfully,

RAINSFORD F. GILL, M.D.Lond.

King Henry's-road, S. Hampstead, N.W., Feb. 26th, 1894

[1] THE LANCET, July 15th, 1893.
[2] Brit. Med. Jour., Feb. 11th, 1893.
[3] Ibid, Dec. 31st, 1892.

"DECREASE OF THE PRISON POPULATION."

To the Editors of THE LANCET.

SIRS,—In your annotation on the above subject, which appeared in the last issue of THE LANCET you are perfectly entitled with the information before you to repeat the Registrar-General's charge that I have made an incomprehensible blunder as to the total number of committals to prison. As you have repeated this charge I feel sure you will have the courtesy to allow me the privilege of a reply. When that reply is made you will be able to form your own opinion as to who is the incomprehensible blunderer; in fact, it is only the mysterious exigencies of daily journalism which have prevented the public from forming this opinion before now.

Let me come to close quarters with the Registrar-General's statistics. This official says the committals to prison in 1881 amounted to 109,912, and in 1891 to 71,635. I have said, on the other hand, that the total committals to prison in 1881 amounted to 188,586, and in 1891 to 162,191. Here is an enormous disparity on an elementary point in criminal statistics. Either I have blundered or the Registrar-General has blundered. In order to see who is in error let us consult the supreme and ultimate authority on these matters—I mean the "Judicial Statistics" of England and Wales. On p. 33 of the "Judicial Statistics" for 1881 and on p. 35 of these Statistics for 1891 we read: "The commitments to each of these prisons during the year ended March 31st, 1882 (and during the year ended March 31st, 1892) were as follow:

Commitments.	1881.	1891.
Remanded and discharged	10,955	9,886
For trial	13,629	10,189
Convicted, not before in custody	1,364	668
Convicted summarily	150,888	128,958
Want of sureties	2,379	1,845
Debtors and on civil process	7,082	8,955
Military and naval offenders	2,298	1,690
Totals	188,586	162,191

Compare the figures with my figures, and you will see that they are absolutely the same. Compare them with the Registrar-General's figures and you will see who has perpetrated the "incomprehensible blunder." In order to make assurance doubly sure the courteous officials at the Home Office who draw up our criminal statistics would no doubt willingly verify the tables I have reproduced, although a cursory glance at the "Judicial Statistics" is quite sufficient to convince anyone that the Registrar-General is entirely wrong. Is it too much to ask that this gentleman should withdraw his accusation against me in the same public manner as it was made. I know errors will occur from time to time in public documents, and it is possible that the Registrar-General, who cannot be expected to go over all sorts of figures on his own account, may have been misled by his subordinates. How the Registrar-General has arrived at his erroneous results it is rather difficult to say. In the first place, he has not consulted those parts of the Blue Book which contain the correct figures in a tabulated form. In the second place he has omitted to take account of the fact that a very large number of persons are annually imprisoned in default of payment of fines. One of the most common forms of sentence is a fine of so much or in default so many days or weeks of imprisonment; but the Registrar-General omits this

important point just as he omitted all reference to the sentences passed on offenders at sessions and assizes in his census return. The latter omission, after I called attention to it, he now admits was a mistake; the former omission he will have to acknowledge is a mistake as well.

I will now venture to repeat my original contention as to the causes which have made the prison population diminish. It has not diminished because fewer offences were committed in 1891 than in 1881, or because fewer people were convicted. The convictions, as I have already said, were 542,319 in 1881 and 611,628 in 1891, an increase about equal in proportion to the growth of population in the decade. The prison population must, therefore, have decreased owing to two causes: (1) reduction in the average duration of sentences to imprisonment; and (2) the substitution of other penalties for imprisonment. I have shown in *The Times*, in opposition to the Registrar-General, that in the interval between 1881 and 1891 the average length of sentence has decreased to the extent of about 24 per cent. This leaves 14 per cent. of the cases of imprisonment and, say, 11 per cent. from the growth of convictions to be accounted for. These cases make a total of 25 per cent. This percentage roughly represents the extent to which fining has increased since 1881. If the proportion of committals to convictions was the same now as in 1881 our prison population, instead of exhibiting a decrease, would show an increase equal to 11 per cent., and the actual numbers in prison, instead of being 17,303, would be over 30,000. Finally, let me add that in no country except our own are the dimensions of the prison population taken as a test of the movement of crime. In Italy and in France the movement of crime is tested in the official documents by the number of cases tried before the courts; in Germany it is estimated by the number of convictions. The tests adopted by the eminent official statisticians of the countries I have named, by Bodio, by Yvernes, by von Scheel, are trials or convictions. The prison population test is too completely dependent on judicial procedure to be of much practical value.

I am, Sirs, your obedient servant,

WILLIAM DOUGLAS MORRISON.

H.M.'s Prison, Wandsworth, March 7th, 1894.

"WOUNDS OF THE PLEURÆ."

To the Editors of THE LANCET.

SIRS,—I have read with great interest the report in THE LANCET of Feb. 17th of Mr. Pollard's case of perforation of both pleuræ, and although it may seem superfluous to suggest any modification of a method of treatment which proved so successful it appears likely that in some cases (e g., a similar injury occurring in an adult, with more rigid chest-walls and more powerfully retractile lungs) greater difficulty would be experienced in emptying the pleuræ of the air which had entered them and thus in expanding the lungs. Expiratory effort, even if supplemented by external pressure, could hardly bring the chest-walls and diaphragm into apposition with the retracted lungs and thus expel all the air from the pleuræ; and in this case the very rapid respiration and the dusky aspect alluded to were doubtless due to the imperfect expansion of the lungs for many hours after the wounds were closed. I venture, therefore, to suggest a method by which the pleuræ might be emptied—viz., by direct insufflation of the lungs. I think that anyone who has practised artificial respiration in asphyxia neonatorum by "tracheal insufflation" must have been struck by the ease with which the lungs and throat may be expanded in this way. In such a case as the one under notice the only force to be overcome is the elastic contraction of the lungs—equivalent to a pressure of 5 mm. of mercury (rising with extreme distension to 30 mm.), whereas the expiratory power of the operator, on the other hand, is not less than 60 mm. and may be as high as 100 mm. (*vide* Foster's Physiology). It would not, I think, be necessary to pass a cannula through the glottis in order to effect this object, but it would suffice to blow steadily through a tube held firmly between the patient's lips, the nostrils being closed. As soon as the lungs had fully expanded and all air had thus been expelled from the pleuræ the edges of the wounds might be held together in the manner adopted by Mr. Pollard and then carefully sutured. A simple experiment on the cadaver demonstrates the feasibility of expanding the lungs in this way. Cases of wound of the pleura without implication of the lung being necessarily uncommon, I have not been able to put this method of treatment into practice. It is based, so far as I know, entirely on theoretical grounds, and I bring it forward thinking that some reader of THE LANCET may have an opportunity of testing its efficacy. Possibly, however, someone will point out reasons why such a procedure would be impracticable as well as undesirable. I do not suppose that it possesses any intrinsic advantages over aspiration of the pleural cavities immediately after closure of the wounds—an effectual means of attaining the same object and, doubtless, one which is well known; but "aspirators" are not always available in emergency and, even when at hand, are often out of order. Under such circumstances I think that the plan suggested above might be useful.—I am, Sirs, yours truly,

Feb. 27th, 1894. R. C. BARTLETT.

"THE MUIRHEAD COLLEGE FOR WOMEN, GLASGOW."

To the Editors of THE LANCET.

SIRS,—Your correspondent in his article on the Muirhead College appearing in THE LANCET of March 3rd, asserts, in reference to sending the medical faculty of Queen Margaret College south to the new institution at the Victoria Infirmary, that "there has never been a single sound argument adduced against such a course, and there is everything to be said in its favour." I desire now to adduce what seems to me to be a sound argument against the course he favours. It is this. If the Muirhead College was founded according to the plan he proposes it would stem the tide of progress in the matter of the medical education of women for at least a generation. To adopt the scheme propounded in his article would postpone indefinitely the time when the only remaining difficulty in the way of women enjoying entire freedom in their efforts to obtain a thorough medical education—viz., the institution of mixed classes—will be removed. So long as women are not permitted to compete with men in the same class-rooms, the same laboratories, and the same wards, to struggle with them for the same prizes, and to enjoy equal privileges in selecting their teachers and preparing for examinations, they will labour under disabilities which are not imposed upon men. "To the mere extra-mural mind" this seems unjust, and the perpetuation for a time of this injustice can be the only result of the adoption of the scheme proposed. In my opinion the establishment of mixed classes all round is only a matter of time, and probably a very short time. Even now I have been informed that mixed medical classes have been, and are being, held in the University of Glasgow itself. If my information on this point is inaccurate I am quite subject to correction. The establishment of Queen Margaret College Medical School was necessary as a stage in the evolution of the medical education of women. It was a necessary concession to the public sentiment—rapidly disappearing—against mixed medical classes. The abolition of Queen Margaret College as a corporate body and its absorption as the Women's Department of the University of Glasgow constituted another stage and a step nearer the complete emancipation of women. The professors in Glasgow who have chosen or been requested to teach the women students will not long be permitted to depute the greater part of that teaching to assistants, and it is unlikely that they will long agree to deliver the same courses of instruction daily to two separate classes. Mixed classes constitute the only solution of the difficulty, and thus it happens that the time for the institution of separate colleges for women has passed. It might be argued that such colleges could be used by women who did not wish to join a mixed class. To this I have no objection so long as women are not *compelled* to attend a separate class. But I have taught women both in mixed and separate classes for the last five or six years (a number of my former women students being now engaged in the practice of their profession), and of this I am certain, that if women have the option of joining a mixed class there will be no students for the Muirhead College. This is an aspect of the question which has apparently been overlooked by the Muirhead trustees. The "strong and rugged personality" of Dr. Muirhead is referred to by your correspondent; but I cannot help thinking that, had that personality not been tinctured by vanity, his trustees would not now be in their present difficult position. I would like, in addition, also to say that a careful perusal of your correspondent's article leaves me in doubt as to whether the trustees have arrived at any final conclusion on the matter. If the determination "to go on with their task" is final, why the

veiled threats levelled at the University Court or the hints at the necessity of a speedy *modus vivendi*? The very terms of Dr. Muirhead's will, seem to preclude the possibility of either absorption or affiliation with any Scottish university, St. Andrews among the number. All our university courts have both clergymen and medical men on their membership, and affiliation would imply representation of the court on the Muirhead Board, and thus one of the essential provisions of the will would be violated.—I am, Sirs, yours truly,

Glasgow, March 5th, 1894. JOHN LINDSAY STEVEN.

INFECTIOUS DISEASES (NOTIFICATION) ACT, 1889.

To the Editors of THE LANCET.

SIRS,—May I point out what must be regarded as a grave defect in the Infectious Diseases (Notification) Act, 1889, and one which, I have little doubt, will have to be remedied sooner or later. I refer to the facility it affords for grave misuse by putting in the hands of the smallest sanitary authority, and hence into the hands of their advisory and executive officers, the power to summon vexatiously, and on totally inadequate evidence, respectable medical practitioners to appear as defendants in a police-court with its inseparable criminal associations. Unreasonable prosecutions under the Act are becoming unpleasantly common. In one instance a purely unintentional omission to notify—an omission which any medical man in busy practice can understand may readily happen—led to such a police-court prosecution. Moreover, it has become common for village medical officers of health to so misread their powers as to visit the patients of their brethren and to assume that it is one of the functions of their office to sit in judgment on the diagnosis of their fellow and rival practitioners. In a recent case the Local Government Board issued a letter pointing out the impropriety of such action, but this surveillance on the part of the medical officer of health has led to several recent prosecutions and threats of prosecution. The members of small authorities not infrequently think they constitute a proper tribunal to decide obscure questions of diagnosis and regard their medical officer of health as their skilled assessor. Consequently a word from him is sufficient for them to decide on a prosecution under the Act. As an example of the confusion and improprieties which take place I quote another case. A small sanitary authority, because, as they allege, "their medical officer had carefully diagnosed the case" (*sic*) of another practitioner, refer the matter to a still smaller committee, with a view to prosecution under the Notification Act for the non-notification by the practitioner of disease which, in his opinion, did not exist, and in spite of one clear-headed member of the board, who, although personally unacquainted with the practitioner in question, protested that a committee was not competent to deal with such a matter, and who publicly maintained that many of these prosecutions "were the result of caprice, personal feeling, and animus on the part of the officers, and perhaps some of the members of the board." Again, prosecutions have followed omission to notify cases in which the signs render a certain diagnosis absolutely impossible, and one clerk to an authority is reported to have delivered himself thus: "The Act was passed in order that diseases, which in the opinion of medical men were *likely to develop into one* of those mentioned in the Act, might be notified at once." This in spite of the clear language of Section 3, which says: "Every medical practitioner ..... shall forthwith on becoming aware that the patient is suffering from an infectious disease ..... send to the medical officer of health ..... a certificate." What I ask, Sirs, is this: Is it right, reasonable, or conducive to the maintenance of its honourable status that the members of a generous and public-minded profession should be subject to the indignity of a police-court prosecution instituted by an authority acting under the guidance of officers who can read the plain English of Section 3 in this way, or of medical officers equally fallible as themselves and whose worldly interest is to discredit their rivals? Let us have notification by all means as a basis for isolation, but let the profession have some security and protection from persecution originating in ignorance, conceit, rivalry, or other improper motive. The remedy is to amend the Act so that the veto of prosecution shall be vested in the Local Government Board. This is the only feasible way to save an otherwise beneficent Act from ultimate inevitable repeal.

I am, Sirs, yours truly,

Birmingham, March 5th, 1894. LESLIE PHILLIPS, M.D.

"EXPERIMENTAL DEGENERATION OF THE PYRAMIDAL TRACT."

To the Editors of THE LANCET.

SIRS,—Professor Sherrington in his letter has made it abundantly clear that there is no possibility of the truth of the misunderstanding relating to his imputation being arrived at except by the whole matter being subjected to arbitration by experts, as proposed on the 21st ult. by Professor Horsley, but unfortunately refused by Professor Sherrington. The latter continues to make attacks on Professor Horsley, although that gentleman confined himself strictly to defending Dr. Mellus from the imputation put upon him by Professor Sherrington and to demonstrating that it was Professor Sherrington's duty to acquaint Dr. Mellus or himself with the fact that he had recommenced the work. I have now to refer to Professor Sherrington's statements relating to myself. In the first place, Professor Sherrington alleges that I made statements to him and Mr. Shattock on Feb. 15th, and he so words his allegations as to convey the impression that I was informed by him in October that he was working at the "arm centre" and that the work at University College was urged on in order to forestall his work. Furthermore, he bases these allegations on "notes" taken by Mr. Shattock. This conversation on Feb. 15th was held at Professor Sherrington's request, conveyed in two letters to me, asking for an interview. It may appear incredible, but it is nevertheless the fact that no "notes" such as are alleged to have been made were read over at the end of the meeting or even shown to me. I therefore not only deny the authority of such "notes," but consider that their introduction under the circumstances is most improper. Further, my letter, a portion of which is quoted by Professor Sherrington, was one written in answer to the first intimation received by any of us that he had recommenced the work. That intimation was conveyed in a letter dated Wednesday morning, Jan. 31st, 1894, in which he informed me that he was about to publish his note, that it contained the sentence imputing the desire on the part of someone at University College to forestall him, and that he would, if I wished, erase that sentence. Your readers may be interested to learn that Professor Sherrington posted that letter on Wednesday, Jan. 31st—i.e., after he had sent his note to THE LANCET, or at least on the same day—but, as THE LANCET is printed on Thursday, it is evident that his offer to erase this sentence had no meaning in it, inasmuch as my answer could not reach him in time, and did not, although I replied at once. The present dispute is, without doubt, attributable to the note being published by Professor Sherrington with this unwarrantably discourteous haste. The letter quoted by Professor Sherrington, of which I unfortunately have not the complete copy, was the reply I speak of, and was of a very friendly nature, inasmuch as neither I nor Professor Horsley, to whom I read Professor Sherrington's letter, suspected that the latter had as a matter of fact the note already in the press. The sentence, on which Professor Sherrington bases his final allegation that I knew in October that he had recommenced the work, was written under these circumstances, and as he informed me in his letter that he had got results I assumed of course in ordinary courtesy that he had been working and so framed my sentence. I repudiate the interpretation now put upon my words by Professor Sherrington and what they may readily be supposed to bear, though I may add that such an interpretation is absolutely incompatible with the tone of his letter to me.

I repeat that, seeing that it is impossible in this arena to give at full length all the circumstances of the dispute, no just conclusion will be arrived at without a judicial inquiry into the facts. Unfortunately, I understand that the probable reason why Professor Sherrington shrinks from entering into arbitration is that after this controversy began he destroyed the specimens on which his communication to you of Feb. 3rd was based. Although this might be so, still everyone must wish that the truth should prevail, and it is with the object of making sure that by means of an arbitration nothing shall be concealed that I have written the foregoing, although, as stated last week by Professor Horsley, I had no intention of taking any further part in this correspondence after Professor Sherrington's refusal to follow the usual course. I am, Sirs, yours faithfully,

March 6th, 1894. RUBERT BOYCE.

*** The correspondence on this subject must now cease.—ED. L.

"THE ETIOLOGY OF CHRONIC HERNIA."

To the Editors of THE LANCET.

SIRS,—THE LANCET of Feb. 10th contains an article by Mr. Stanmore Bishop on the "Etiology of Chronic Hernia &c.," wherein he has done me the honour of quoting some words of mine, but at the same time has attributed to me an opinion on the cause of hernia from which I dissent, and for which I do not think the passage gives sufficient warrant. I will not offer any comment on the division of herniæ into acute and chronic, which Mr. Stanmore Bishop adopts, but will concern myself merely with his main argument, which runs somewhat as follows. Pathological specimens and clinical observations both furnish evidence that ruptures form gradually for the most part and do not make their appearance suddenly as the result of an extraordinary effort. Further, many ruptured persons are not only strong but even particularly powerful. Some cause, therefore, which is long continued and does not interfere materially with the general health must give rise to herniæ, and if this cause has ceased to act or can be abolished the operation for the cure of hernia will be permanent and "radical." In the course of this argument Mr. Stanmore Bishop refers to some remarks of mine on the relation of occupation to the production of ruptures and infers that I am "imbued with the idea that undue strain, combined with constitutional debility, is the true cause of hernia." All that I have said on the cause of hernia goes to show that this affection has a local origin; that some congenital or acquired defect of the abdominal wall is present in some cases and is probable in all; and that the weak spot yields sooner or later to intra-abdominal pressure. Mr. Stanmore Bishop, however, after excluding herniæ of congenital origin from consideration, leaves on one side the question of local infirmity and attributes the protrusion to oft-repeated internal pressure, such as arises from "difficulties in urination and defecation, certain occupations, and chiefly, and most prominently, coughing in all its forms." Of coughing in all its forms it is sufficient to remark that if a number of patients are interrogated as to the existence of cough preceding the hernia or at the time of its first appearance it will be found that only a small percentage have thus suffered. It is not my purpose to inquire further into the validity of Mr. Stanmore Bishop's argument, nor, under any circumstances, would further inquiry be necessary, for it appears to belong to that class in which, if the case is stated in plain terms, its truth or imperfection is at once apparent.

I am, Sirs, yours faithfully,

Queen Anne-street, W., Feb. 24th, 1894. J. MACREADY.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

The Liverpool Sailors' Home.

AT the annual meeting of the Liverpool Sailors' Home the following very satisfactory report from Dr. A. Bernard, surgeon to the institution, was read: "During the past year the health of the boarders has been good. The more serious cases of illness, such as pneumonia, bronchitis, phthisis, and malarial fevers, were promptly transferred to the general hospitals. Other cases requiring medical attention comprised ague, bronchial catarrh, a few cases of scurvy, gastric disorders, common colds, &c., the majority of which were treated in the institution. Only seven patients suffering from the immediate effects of drink came under medical observation, a small number compared with that of former years. The boarders were singularly free from influenza. The sanitary condition of the building is excellent, as is evidenced by the small number of cases treated for diarrhœa during the autumn."

Port Sanitary Work in 1893.

The report of Dr. Hope, port sanitary medical officer, shows that during the year 1893 210 vessels which entered the Mersey were inspected under the cholera orders and 62 cases of sickness (4 being choleraic diarrhœa) were discovered on board ships, the total number of inspections made for sanitary purposes generally being 5971. The total number of emigrants who left Liverpool in 1893 was 167,468, compared with 200,786 in the preceding year. Of the total, 87,897 were English, 68,527 Germans and Norwegians, 6346 Irish and 1002 Scotch. The report adds: "The offices of the port sanitary authority at the Pierhead are nearly completed. In addition to the ordinary office requirements, they provide appropriate waiting and reception rooms for rejected emigrants, and suitable lavatory accommodation. The hospital at New Ferry (Cheshire) is now fully equipped for the reception of cholera patients, and a new laundry has recently been built and improvements and additions made in connexion with other hospital accessories. The medical officer has much pleasure in acknowledging the valuable assistance of the officers of Her Majesty's Customs and the Board of Trade in carrying out the various duties of the department."

The Eye and Ear Infirmary.

By the retirement of Mr. Edgar A. Browne, alluded to in a previous letter, Mr. Charles Shears, the senior assistant surgeon, becomes surgeon to the Liverpool Eye and Ear Infirmary. Mr. Shears has done useful work during twelve years—three years as resident medical officer and nine years as assistant surgeon; he has, therefore, well earned his promotion.

Case of Oxalic Acid Poisoning.

Mr. Brighouse, the county coroner, concluded to-day an inquest on the body of a man twenty-one years of age, who died at St. Helens on the 1st inst. The evidence of Mr. Frederick Knowles, surgeon, who made the post-mortem examination, showed that death was clearly due to oxalic acid poisoning, but there was no evidence as to how he obtained it. He had taken what he supposed was a dose of Epsom salts, and Mr. Knowles showed the jury how closely the crystals of the two substances resembled each other. Ultimately an open verdict was returned. Cases of poisoning by oxalic acid are sufficiently rare to make it desirable that full details should be given, and it is to be hoped that a full report of this case will be published.

"Greater Liverpool."

The extension of the city boundaries so as to include the various townships of West Derby, Wavertree, and Walton, and the extra parochial district of Toxteth Park has been agreed to, and its accomplishment is now only a question of time. "Greater Liverpool," as it has already been named, will have greater justice done to it in the matter of health and vital statistics than its smaller self has had in the past; for while it has had to bear all the opprobrium of slum life, river fatalities, and deaths not really its own, it has not been permitted to share in the low rate of mortality enjoyed by so many of its citizens who resided beyond the present city boundary. It is estimated that the additional localities included within the boundaries will add 145,000 to the population, and it may be confidently expected that the ratio of mortality will compare very favourably with that of other large centres of population.

March 6th.

NORTHERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENT.)

West Hartlepool and Infant Mortality.

THE medical officer of health for West Hartlepool (Dr. Gourley) in his annual report says, in reference to the deaths amongst children under one year, that their number was 306, showing an alarming increase over 1892, when the deaths were only 219. He shows also that the deaths among children under five years of age constituted more than half of the entire deaths of children, and commenting on these he says that they could be largely prevented by proper cleanliness, feeding, and nursing; as the result of long experience and careful observation, he is more than ever of opinion that the insurance of infants should be prohibited in all cases, except in the regular friendly societies which are used by the industrious and provident class.

Serious Accidents to Surgeons.

Mr. Lovegrove, surgeon of Gowton near Northallerton, was called to see a patient last Wednesday, and, the night being dark, a mistake was made in the road. The occupants were thrown out of the trap, Mr. Lovegrove unfortunately falling on his head. Mr. Tweedy and Dr. Walton of Northallerton were called. They found him suffering from concussion of the brain and paralysis of the right side. Up to yesterday evening he remained unconscious. I regret to hear also that Mr. Hartley, surgeon, of Thirsk, met with a serious trap accident

on Saturday last when driving. The horse took fright. Mr. Hartley was thrown out, sustaining fractured ribs and, it is feared, some internal injuries.

Surgical Appointment.

Dr. James J. Archbold of Alnwick has been appointed house surgeon to the Alnwick Infirmary.

"Wolsingham, the Healthiest Place in the World."

This was the heading which went the round of the papers some time ago. The last report from this district is that in the Derwent division of the union, which has a population of 523 and an area of 15,260 acres, 13 births and 2 deaths were registered during the year 1893, which gives a birth-rate of 24·8 and a death-rate of 3·8 per 1000. The two deaths occurred at the respective ages of seventy-nine and seventy-five. There were no deaths from zymotic diseases and no infant mortality. The average death-rate for the last five years is given as 11·6 per 1000.

Playing with Pistols.

At Stockton, on Saturday last, another accident arose from playing with pistols. Two youths had gone into the fields to play with toy pistols. One was examining his companion's pistol, when, it is said, it suddenly went off, the bullet entering the unfortunate lad's temple and causing his death in hospital the next morning.

Proceeds of the late Carnival.

By means of the late carnival, promoted in Newcastle by the committee of the Press, Dramatic, and Musical Sports, the handsome sum of £300 has been handed to the treasurers of our various medical charities in this city.

Newcastle-on-Tyne, March 6th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

Morrison Lectures on Insanity delivered at the Royal College of Physicians, Edinburgh.

DR BATTY TUKE in his third lecture reminded his audience that in the brains of those dying insane the naked-eye evidence of change was in the line of the Pacchionian villi and the Rolandic area, from which it gradually faded away anteriorly, posteriorly, and laterally. The condition of the pia to the naked eye afforded a fair index of the degree of active morbid action in the subjacent convolutions. How was it, then, that the areas which we were taught to believe form, in the words of Ferrier, "the substratum of those psychological processes which lie at the foundation of the higher intellectual operations" and the aberration of whose functions is the prominent symptom of the disease under consideration, present in most cases slight visible departures from normality of the membrane, and in a certain proportion none? The question was difficult of solution, but the attempt to work it out might be productive of interest. The focus of diseased action round the Rolandic fissure sends downwards from certain of its zones of cells (according to Professor Ramón y Cajal the pyramids) axis cylinders, which are in connexion with fibres forming the pyramidal tract, which can be traced through the inner capsule to the crusta; these are connected with the skeletal muscles and the movements of the eyes, mouth, face, tongue, pharynx, and larynx. He did not ask that it be accepted without reserve that the centripetal or terminal fibres of Cajal were the afferent paths. Cajal merely asked, "Was it possible that such fibres represent the cerebral termination of sensory nerves, or at least that of axis-cylinders proceeding from cells dovetailed with the terminal branches of those nerves?" However this may be, no one can doubt that some such executive afferent apparatus exists. There were the strongest reasons for believing that kinæsthesis, transmutation of sensory stimulus into motion, occurred in the pyramidal cells of the Rolandic area. In addition, in the same area important and essential impulses must be transmitted from the pyramids to cells of other regions, where they are conserved or released, according to circumstances. Quoting from Ferrier: "There were centres for special forms of sensation and ideation and centres for special motor activities and acquisitions, in response to and in association with the activity of sensory centres; and these in their respective cohesions, actions, and interactions, form the substrata of mental operations in all their aspects and in all their range. The processes by which a sensation becomes transformed into a sentiment are outside physiological theory; but, without prejudice to the opinion that nerve force is a physical force, it may be pointed out that its transformation stands on the same platform as the doctrine of the transformation of physical forces; both can be demonstrated experimentally, but the conditions of matter incident on the processes is in either case subject of speculation. The organs of the Rolandic area were probably not the only transmutators of energy, but it was evident that their action must have a wide-spreading influence on that of other regions. This area was the most active and therefore the most liable to injury. Given that its cells were affected by any evil influence (by the influence of over-exertion), we had a right to look to it for the effects of impaired transmutation. So far as could at present be judged, the pyramids were the first cells to show morbid changes. In almost all subjects evidence of work was found in these organs; but the evidences of work increased proportionately with age and cause of death. He had examined these cells in many animals and many human beings. In the former the indications of waste due to exercise of function as manifested by pigmentation were slight, only such as might be assumed to be physiological in amount. In the young man or woman dying of acute disease the same holds true, but in cases more advanced in life they increase, but not beyond a certain limit. In those taken from subjects who have died after long, painful, or wearing disease, who have laboured under delirium or other head affections, or who have died insane, the indications of waste and of structural change become more and more pronounced, and the increase occurs in the order in which the causes of death have just been stated. In the large proportion of cases in which morbid mental symptoms have presented themselves, and in which excessive pigmentation has been observed, the body of the cell undergoes changes in form, and its protoplasm, judging from the manner in which it takes on stains, also becomes changed in quality. He referred to the observations of Miles on the effect of traumatism as supporting his view. In cases which he had examined, which had succumbed earliest after the incidence of insanity, none of the cells of the anterior two-thirds of the frontal convolutions and of the posterior occipital gyri were so deeply implicated as those of the Rolandic area; they were not nearly so deeply pigmented, and their degeneration was of the granular character. Given a zone of important cells undergoing stimulation beyond the physiological limit, we might expect effects to be transmitted to remote organs exercising different functions by means of the intimate anatomical connexions which have been demonstrated, and it did not follow that those effects must be of the same nature as those acting on the cells primarily affected. In the convolutions anterior to the Rolandic area the effects of subinflammatory action were much less marked in insane patients than at the vertex. There the changes to his mind were indicative of impaired nourishment rather than active morbid action, and of interruption of trophical function which depended on the maintenance of the integrity of all connection. To this destruction of cell material and of the implication of nerve fibre must be ascribed the general shrinkage of the anterior lobes so often noted in the insane. In the course of almost every case of idiopathic insanity—i.e., insanity due to over-exertion of the brain—we have a fairly well marked prodromal period indicating the diseased balance between nutrition and function in the kinæsthetic area. As the impaired function of the cells of this area makes itself felt on the cells of ideation centres, whether by increased or lessened conduction of energy or by modifications of their nutritive influences, there was reduction of the structural integrity and perversion of psychical acts. On the rapid removal or non-removal of the causes of implication of the cells of the Rolandic area depended the issue of the cell-recovery or prefrontal atrophy. The comparatively slight milkiness of the frontal pia was dependent not on underlying morbid action but on the damming back of the lymphatic stream, which, running upwards, was arrested at the vertex in the line of the Pacchionian villi. This appearance was present in other conditions, but it was most marked and at an earlier period in the insane than in others. He showed that the appearances were due to the accumulation of waste, and he discussed the reasons of its localisation in the areas indicated. He submitted that he had adduced sufficient evidence to illustrate the existence of an apparatus of the most complex kind; and if on the maintenance of this most

delicate and intricate machinery in its entirety depended the healthy working of the body, and the normal exercise of the mental functions, how was it that pathological and other accidents did not occur more frequently? This was due to the bony envelope, and to the constant variation in the quantity of the cerebro-spinal fluid. This fluid also received from the lymphatic system the products of waste, and under abnormal conditions the products of diseased action. Any interference with its flow must act detrimentally. The brain obtained no vicarious assistance from other systems; it had to do its own work, and rid itself of all effete matter. He then turned his attention to the symptoms produced by morbid hyperæmia and congestion of the Rolandic area. He did not propose to discuss in detail the question as to the manner in which the central nervous system affected metabolism. No tissue was immune from the influence, and the functions of all suffer manifestly. The earliest symptoms of over-exertion of the brain had been already stated. The general falling off from the normal condition of the body—restlessness, irritability, anxiety, and so forth. The digestive system was the first, as a rule, to suffer prominently; the muscular system next showed indications of loss of tone. The patient was conscious of change, and had a general sense of weakness and inability to apply himself to work. At this stage there are most frequently abnormal salts in the urine. Was this an indication that systemic degradation resulted from nerve waste, which, in its turn, might be ascribed to perverted metabolism of the superior cortical areas, and that reduction of nerve conductivity showed its effects on the glandular and muscular systems? To his mind it was impossible to refuse to draw the inference. But the question arose whether that was a direct action, or through modifications of the vaso-control apparatus, and he thought it was probably the latter. The blood suffered sooner or later, usually after the prodromal period. In certain cases the changes in the blood were a direct consequence of impaired nervous influence acting on the blood-glands. The actions and reactions of the blood conditions demanded careful inquiry. The general result of his own observations was that blood changes were not manifested until actual insane excitement appeared. It appeared to him that the sequence of pathological events was as follows: acute congestion and nerve waste, production of active symptoms which, if not relieved, are followed more or less rapidly by weakened action of the glandular systems and consequent deterioration of function of the alimentary canal, and implication of the blood; and as a condition of venous congestion and stasis was reached there was a further reduced functional activity, not only of the organ primarily affected, but also of the various systems which it governs. Hodge's experiments had shown how rapidly cell-collapse can be reached, and it was not difficult to realise what the consequences of the maintenance of that condition would be, and what disaster must follow if repair was not obtained. Loss of tone of the digestive apparatus was an almost invariable prodromal symptom. Accentuation of the first heart sound, which was a common symptom, was of no importance. Much greater importance was often attached to menstrual disturbances than was actually warrantable. Its cessation was one of the symptoms of general degradation of the system, and he proceeded to show that this was the case and how little ground there was that menstrual and uterine disorders were a cause of insanity. Insanity was never the result of diseases of individual organs, but it was occasionally more or less connected with diathesis or cachexia such as tuberculosis, rheumatism, gout, and syphilis, but in many of these it was only a connexion and could not be regarded as the determining agent.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

Medical Students' Petition.

A PETITION has been drawn up requesting the Council of the Royal College of Surgeons in Ireland to redress various grievances, one being the examination fees, which are stated to be higher than at other colleges. It has been decided to draw up a list of the fees charged by the examining bodies of the United Kingdom and to present a copy of the petition to the President of the College and to the secretary of the Council. A Medical Students' Association has been formed, which will be managed by a committee composed of representatives from the Royal University, Royal College of Surgeons, and Catholic University Medical Schools. On Monday evening a meeting of the medical students of the Catholic University Medical School was held, with delegates from the other schools, to consider the petition, which is to be presented to-day (Tuesday) to the governing body of the Conjoint Colleges of Physicians and Surgeons. The following resolution was unanimously adopted: "That we, the medical students of the several Dublin schools, pledge ourselves to stand by each other in the upholding of our common rights."

Catholic University Medical School.

A meeting of the Medical Society was held on Feb. 26th, Dr. Birmingham being in the chair. Dr. Byrne showed a case of Subpectoral Abscess, Dr. Forrest a patient from whom a Frontal Angioma had been removed, and Dr. P. Joyce exhibited a specimen of Dysenteric Colon. Dr. McWeeney gave an interesting account of the most recent researches concerning the etiology of dysentery. Mr. McArdle exhibited a stricture of the rectum, and pointed out the peculiar brown nodular outgrowths of the mucous membrane which invariably came away in the fæces of patients suffering from rectal cancer; he also showed a frontal angioma with cavernous tissue, and an enormous renal tumour successfully removed. Mr. Gorman read a paper on the Conditions noted after Section of the Ulnar Nerve. Reflex trophic ulcers occurred on the skin supplied by the internal cutaneous nerve. Dr. Mooney read a paper on Dislocated Lens.

Health of Dublin.

During the five weeks ending Feb. 3rd there was a slight increase as compared with the previous month in the mortality ascribed to measles, and a large increase in that due to whooping cough. There was a great decrease—two-thirds—in the deaths caused by typhoid fever. The death-rate in this month was 2 36 per 1000 below the mean rate for the corresponding period in the previous ten years. The zymotic rate was 0 82 above the mean rate. The comparatively warm weather which prevailed during the month accounts for the comparatively low mortality.

Dispensary Medical Officers: Consultation Fees.

At Longford Assizes last week the case of Mr. N. Mayne against the Longford Union was heard. It was an appeal by the guardians from a decree granted by the county court judge awarding the plaintiff £8 8s. The plaintiff had been called in consultation by one of the dispensary medical officers of the union in four several cases, two of which were midwifery cases and one a dislocation of the shoulder; but the guardians considered they were not liable for the fees, inasmuch as the medical officer had not obtained the necessary orders from the relieving officer authorising the calling in of a consultant. The Irish Medical Association supported Mr. Mayne, and their counsel asserted that it was not necessary for dispensary medical officers to obtain an order from the relieving officer to call in a consultant. Judge Andrews stated that, as the case was a very important one to the medical profession, he was willing to state a case for the opinion of the Divisional Court. This suggestion was agreed to, and the case will come on for argument early next sittings.

The Lord Chancellor has appointed Dr. William Jephson Weldon, Gorey, to the Commission of the Peace for the county of Wexford.

March 6th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Treatment of Gunshot Wounds of the Head.

OUGHT immediate surgical intervention to be the rule in bullet wounds of the cranium, or should the onset of meningo-encephalitis be the earliest signal for operation? At some recent discussions on the subject at the Société de Chirurgie some surgeons uphold one view and some the other. M. Quénu is amongst those who regard preventive trephining as the line of conduct to be followed. He maintains that very frequently the wound becomes rapidly infected, and he regards as very doubtful the accuracy of M. Berger's statement that revolver bullets are always aseptic. M. Quénu further states that trephining in these cases is an invariably harmless procedure. In support

of this view he cites amongst other cases that of a man who had fired five revolver shots into his head. An antiseptic dressing was applied for forty-eight hours, when a dirty discharge began to flow from the wound, and headache and fever supervened. Trephining was immediately had recourse to, and the five projectiles, one of which lay on the surface of the dura mater and another had perforated that membrane, were extracted. In a few days the patient was discharged cured. M. Desprès utters a note of warning against early explorations in this accident. A young woman was once brought into his wards with a bullet wound in the temple. His dresser inserted a probe to the depth of ten centimetres without gaining any information from the exploration. On his arrival M. Desprès washed the wound and covered it with plaster. No complications ensued, and the woman is now, a year after, well. M. Reclus pronounces in favour of an opportunist policy. M. Monod, in the course of researches in the literature on the subject, finds that Wharton's statistics (1879) give 316 cases of penetrating wounds of the brain, with 156 deaths and 160 recoveries. In 106 cases the extraction of the foreign body was effected, with 72 recoveries and 34 fatal results. Of the remaining 210 cases left to nature, 88 recovered and 122 died; but 49 of the 160 apparently cured cases succumbed to the cerebral mischief at a later date. In 91 cases of bullet wounds of the head collected by Bradford and Smith, where treatment was limited to antiseptic dressings, 40 recovered and 51 died. In 34 of the 40 recoveries the projectile remained lodged in the brain, but in 16 of these complications supervened later, killing 9. To sum up, it appears that more than half of such bullet-wounded persons die, that of those who recover in more than a third the projectile remains encysted in the skull or brain, and that in half of these survivors ulterior complications appear with fatal results in half the cases. Where trephining has been practised recovery has occurred in more than half the cases. In 15 instances the ball was extracted, yielding 10 recoveries and 5 deaths. In 22 cases bony splinters were removed, with 10 recoveries and 12 deaths. Bradford states that the danger in pistol wounds of the cranium lies as much in the concomitant fracture and penetration of bony fragments as in the presence of the projectile in the cranial cavity. Professor Delorme of the Val-de-Grâce military hospital, has recently been experimenting on the effects of revolver shots on the crania of dead bodies, and he concludes that in such cases exploration is uncertain in its results, and is even useless if the ball is deeply lodged. He remarks on the remarkable facility with which the normal brain allows itself to be traversed by metallic explorers. Generally the mischief is aggravated by exploration, even when carefully done. Bony splinters are always present in great numbers in the wound or in the brain, and they are frequently situated beyond the line of trajectory of the bullet. The size of the splinters is often more than that of the bullet, and they are more irritating to the brain than the latter. The bullet scatters the splinters to a great distance on all sides into the brain substance. Their complete removal is therefore impossible. If neither bullet nor splinters be discovered at a depth of two or three centimetres the exploration should be abandoned. If the projectile has penetrated the base of the brain any idea of exploration or operation must be rejected.

Poisoning by Melinite.

The employment of every newly invented substance appears to bring danger to health in its train and to provide work for medical men. The manufacture of shells charged with the deadly explosive melinite is a case in point. A French naval surgeon, Dr. Gueit, reports in the November number of the *Archives de Médecine Navale et Coloniale* an example of mixed melinite and lead poisoning. Melinite poisoning is none other than poisoning by picric acid. The lead absorbed results from the boring of the shell prior to the introduction of a special detonator. The symptoms are loss of appetite, nausea, frequently recurring colicky pains, a strong bitter taste in the mouth, cough, and salivation. The bitter taste is doubtless due to the elimination of melinite by the salivary glands. The skin also excretes it, as it becomes straw-coloured. The persistence of these symptoms brings about a state of malnutrition with consequent wasting. A milk diet (one litre and a half of boiled milk daily) was found to be an efficacious curative and prophylactic treatment. In one instance, however, this treatment failed. In this case there were a foul tongue, desquamative gingivitis and alliaceous perspiration—all due to picric acid; but other troubles were ascribable to concomitant lead poisoning. They were constipation, nephritis, muscular pains, a blue line, and paralysis of the extensors. In the *Bulletin du Comité Médical des Bouches-du-Rhône* (November, 1890) M. Regnault reports a case of melinite poisoning, the symptoms of which were bronchitis with attacks of asthma. Picric acid was discovered in the urine and in the blood. The patient died from the effects of influenza.

March 6th.

Obituary.

ERNEST H. JACOB, M.A., M.D. OXON.

IT is with much regret that we have to record the death, at the early age of forty-three, of Dr. Ernest Jacob of Leeds. The illness, which proved fatal on the first day of the present month, commenced some six weeks ago and manifested itself chiefly by the formation of an abscess in the auditory meatus. The trouble seemed to pursue a favourable course until a day or two before the close of last month, when serious symptoms supervened, necessitating the performance of a surgical operation, which however was not attended with success—in consequence, it would appear, of the brain being implicated in the disease. Dr. Jacob was the youngest son of the late Archdeacon of Winchester and was educated partly in that city and afterwards at Oxford, from which university he proceeded to St. Thomas's Hospital to pursue his medical studies. His career at college was a highly successful one, as was proved by his taking a double first in natural science. To this academical distinction he subsequently added those of M.A. and M.B., in 1875, the full medical degree being obtained in 1880—that is to say, four years after his surgical qualification had been acquired from the College of Surgeons. His official hospital work commenced about eighteen years ago, when he proceeded to Leeds and was elected resident medical officer at the General Infirmary in that city. This post, however, he did not occupy for any great length of time, as he was conscious of the possession of abilities equal to the discharge of duties appertaining to the higher ranks of the profession. And his instincts did not belie him, as was shown by the success which attended his efforts to cultivate a lucrative consulting practice. It was not long before he sought and obtained a place on the staff of lecturers at the Leeds School of Medicine, the subject of physiology being the one then allotted to him. On the amalgamation of the medical school with the Yorkshire College he was appointed professor of pathology, the duties of which chair he discharged with much acceptance. The assistant-physicianship of the Leeds Infirmary formed the stepping-stone to the full physicianship of the charity, a position he achieved in 1892. Amongst the services he was enabled to render to medicine and its prospective votaries, as well as to the victims of febrile disease, was the establishment of the Fever Convalescent Home at Gildersome. The literary labours of Dr. Jacob have been such as to throw welcome light on certain obscure points in the treatment of rheumatism by the salicylates, and the mortality arising from the use of anæsthetics. These contributions to professional literature were made chiefly through the columns of the periodical medical press, THE LANCET being the chief medium by which the views of the deceased physician were laid before the world. As may be gathered Dr. Jacob was a man of considerable literary and scientific accomplishments. Sanitary science found in him an enthusiastic adherent, and to his sagacity and enterprise many improvements in the warming and ventilation of public buildings were due. Nor was his attention confined to strictly professional subjects, since he managed to find time to devote to the cultivation of some of the fine arts, the progress of photography being amongst the subsidiary objects of his ambition. For a number of years Dr. Jacob had been one of the most active supporters of the Leeds Mechanic Institute and Literary Society, and by the members of that educational establishment, as well as by many others interested in like movements, the loss of his valuable counsel will be sorely missed.

WILLIAM HENRY SPROSTON, M.R.C.S.

ON the 1st inst., at his residence in the Bristol-road, Birmingham, the subject of this notice passed peacefully away

in the seventy-third year of his age. His life was a comparatively uneventful one, filled up as it was by the unobtrusive labours which go to comprise the career of a medical practitioner in a large provincial town. The father of Mr. Sproston was a country clergyman who for many years held the living of Oldbury and who died at the advanced age of ninety-four. Mr. Sproston repaired to Birmingham when quite a youth, and studied his profession under the skilful guidance of his friend Dr. Heslop. There for nearly fifty years he carried on his professional work, surrounded by a *clientèle*, who, whilst profiting by his sagacious advice, were by no means loth to render him in return their unstinted regard. Mr. Sproston was a distinctly religious man and in times of spiritual declension stood manfully in the gap against the inroads of vice and immorality. Any movement having for its aim the promotion of good order and social rectitude amongst his fellows found in him a sturdy supporter—a course which at times subjected him to some inconvenience. He was a member of the St. Paul's Lodge of Freemasons and had held high office in that fraternity, by whom, as well as by a large circle of friends and patients, his loss will be greatly mourned.

SEPTIMUS EDWARDS, M.R.C.S. ENG.

WE regret to announce the death of Mr. Septimus Edwards, M.R.C.S., which took place at Kingsclere on the 28th ult. at the age of sixty-eight years. The deceased was born at Oswestry in Shropshire. His professional connexion with Kingsclere commenced thirty-five years since by the purchase of a practice there. He was medical officer for the Kingsclere division of the union, and held a similar appointment in several friendly societies and benefit clubs in Kingsclere and its neighbourhood. The study of natural history and antiquarian subjects was a source of much pleasure to him. In 1870 he actively assisted to promote the establishment of the Newbury District Field Club and seldom failed to participate in the interesting expeditions organised by that society. Both as an esteemed friend and efficient, kind-hearted public servant his loss will be long lamented in Kingsclere and its neighbourhood.

THE MEDICAL REGISTER FOR 1894.

THE Medical Register for the year 1894 has just reached us. This Register has been thoroughly revised, as usual, and it was published on March 5th; thus it is to be noticed that, as the result of persevering efforts, the Registrar has at last been able to effect a much earlier issue of the publication. The statistics furnished with the Register show the continued growth of the medical profession. In 1876, when the data began to be collected, there were just 22,200 registered practitioners recorded therein. The Register now contains the names of 31,644 persons, showing an increase of 9444 since 1876, and an advance of 1054 over the number appearing in the Register of 1893. In 1894 it will be seen that 1579 were registered for the first time, and that of these 770 were registered in England, 638 in Scotland, and 171 in Ireland. The diminution caused by death during the past year remains much the same—viz., 546 as against 558 in the previous year. A marked feature with regard to the Register is the increase in the number of licensing bodies in the British Colonies and India which have been recognised by the Medical Council as granting qualifications entitling to registration in the Colonial List, the following bodies having been added to those previously recognised: The Universities of Adelaide, Calcutta, Madras, and the Punjab, and the Ceylon Medical College.

We have also received the medical students' register, and this, too, has been published unusually early this year. It contains, as usual, beyond the names of the students registered, much interesting information bearing on the future growth of the profession. It is shown that in the year 1892 the number of those attempting to enter the profession fell no less than 734 as compared with the entries in the previous year of 1891, a diminution possibly due, to some extent, to the substitution of a five years' course for one of four years. It is now, however, to be noticed that the entries are beginning to rise, 1747 students having been registered during 1893, as against 1671 in 1892, showing an increase of 76. It appears also that the often-expressed desire of the General Medical Council that examination in preliminary education should be left to the educational bodies rather than be conducted by medical corporations, is becoming gradually realised, seeing that the number of students registered in preliminary examinations conducted by licensing authorities, other than universities, has fallen from 176 to 131 during the past year. From a table given of the number of students registered from 1863 to the present time it is also shown that 49 54 per cent. of such registrations took place in England, 30 35 in Scotland, and 20 11 in Ireland. It is worthy of note, too, that the Register, besides being earlier in date, is also issued in a much better form than it has ever been before.

THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

AN ordinary meeting of the Council was held on the 8th inst., the President, Mr. J. W. Hulke, F.R.S., in the chair.

A second report was approved from the committee on Section 16 of the By-laws, relating to the misconduct of Fellows and Members, in which the committee recommends that power should be given to the Council to remove from the list of Fellows and Members of the College those whose names had been removed from the official Medical Register.

The report from the Committee of the Walker Prize offered for the best work done during the past five years in advancing the knowledge of the pathology and therapeutics of cancer was approved, and regulations for its award were adopted. These we propose to set forth in a future issue.

The Committee of Delegates on the Report of the Gresham University Commission presented a report, in which they recommended the two Royal Colleges to adopt a resolution empowering the delegates to "cordially approve of the general provisions in the report of the Gresham University Commission, particularly in so far as they relate to the said Colleges, regarding them as being in accordance with the principles which the Colleges have hitherto affirmed and accepted, and as constituting the most comprehensive and academic scheme hitherto proposed."

The dates of the separate meetings of Fellows and Members for consideration of the position which the College should hold in the proposed Teaching University for London were determined as follows: for the Fellows, Monday, 19th inst., at 4 P.M., and for the Members, Tuesday, 20th inst., at 3 P.M.

The Secretary reported that the consent of the Lords of the Treasury had been obtained to the reduction of the minimum number of museum lectures from twenty-four to twelve.

A letter was read from Mr. S. J. Hutchinson, President, and Mr. W. B. Patterson, hon. secretary of the British Dental Association, urging that the Licentiates in Dental Surgery should be made subject to the same conditions as regards professional misconduct as the Fellows and Members of the College. The matter was referred to the solicitors of the College for an opinion.

The Executive Committee of the Sir John Tomes Prize Fund offered the sum of £310 for the purpose of establishing a triennial prize for Licentiates in Dental Surgery. The offer was accepted, and a committee was appointed to draw up the regulations.

INSTITUTE OF CHEMISTRY.—The eighth annual general meeting of this institute was held on the 1st inst., at the offices of the institute, Bloomsbury-square. The annual accounts and the report of the council for the past year were received, and Dr. W. A. Tilden, F.R.S., the retiring president, delivered an address in which he referred to the progress of the institute during the three years of his presidency. The officers and council for the ensuing session were elected, Dr. W. J. Russell, F.R.S., of St. Bartholomew's Hospital, succeeding Dr. Tilden as president. Notwithstanding the fact that the institute has to lament the loss of eight members by death and fourteen from other causes, the number of members has increased by nineteen during the past year, and ninety-eight students have been admitted. The register now contains 738 Fellows, 109 Associates, and 207 students.

Medical News.

GENERAL HOSPITAL FOR SICK CHILDREN, MANCHESTER.—The sixty-fifth annual report has just been presented to the subscribers by the board of governors of this institution. The number of cases received into hospital during the year 1893 was 1332, being an increase of 36 over those treated in the former twelvemonth. Of these, 1102 were discharged or relieved and 120 remained under treatment. The average cost of each patient in hospital was £5 11s. 8d., a slight diminution as compared with the same item in the previous year. By the medical report it appears that there have been fewer cases of diphtheria as well as of typhoid fever during 1893, and although epidemic influenza has to a certain extent prevailed, yet the attacks have, so far as the children are concerned, been mild. The surgical work in the institution has not been such as to call for special comment. In connexion with the convalescent fund, by means of which some 315 children have been sent to the seaside for two or three weeks, the report speaks in grateful terms of the liberality of Mr. F. Mertens, who for that purpose placed £300 to the current account of the fund.

FOOTBALL CASUALTIES.—While playing a match at Woburn Sands, on the 23rd ult., a player fractured his leg.—On the following day, during the St. Helens and Widnes match, played at Widnes, a half-back of the St. Helen's team sustained a dislocation of his humerus.—The following accidents occurred on Saturday last: In a match between Heaton Norris and Christ Church teams, a player of the former team fractured his leg, and was removed to the Infirmary. At Reading, during a match between Reading Redlands and Reading Rovers, a player sustained a compound fracture of his clavicle, and was taken to the Royal Berks Hospital. While playing a match between Cheshunt (Second Eleven) and Ware teams, on the ground of the former, a player fractured his leg. In the match played on the County Ground, Hove, in the Brighton Cup final, between the North End Rangers and Preston teams, a player fractured his leg. In the Lancashire Championship match, played on the Knowsley-road Ground, St. Helen's, between the Town Club and Aspull, a forward player fractured his clavicle.

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.—An adjournment of the annual meeting of this association was held at the Randolph Hotel, Oxford, on Thursday, Feb. 15th, at 10 A.M., under the presidency of Dr. James Murray Lindsay. The first business was to further consider the report of the Rules Committee, which was re-appointed at the adjourned annual meeting of the association on Nov. 16th, 1893. The proposed rules were discussed *seriatim*, and with various amendments were finally approved and adopted. In the afternoon the ordinary meeting of the association commenced. On the proposition of Dr. Conolly Norman, president-elect, seconded by Dr. Savage, the following resolution was unanimously passed:—"That this meeting has learnt with regret the retirement of Mr. Cleaton from his post as visiting member of the Lunacy Commission after a long and distinguished service. The association feels that Mr. Cleaton's kindness and clear judgment have been of the greatest service in his work in the Lunacy Department, and hopes he may live long to enjoy his well-deserved leisure." The President announced that the council had come to the conclusion that the next annual meeting should be held in Dublin about June 12th or 13th, the precise date to be fixed by the president-elect. Eight candidates were admitted members of the association. Dr. Weatherly read a paper on "The Trials and Troubles of a Proprietor of a Private Asylum" in the course of which he described the difficulties which medical men experience in the treatment of insanity and cited various cases illustrative thereof. A discussion followed in which Dr. Spence and Dr. Mercier joined. Dr. Menzies read a paper on "The Future Supply and Status of Asylum Nurses and Attendants," in which he advocated diminished hours of labour, increased leave of absence, better and more varied dietary, and better provision for recreation and amusement. A discussion ensued, in which some of Dr. Menzies' suggestions were criticised. The paper "On the Causation and Increase of Insanity," by Dr. Chapman was, owing to his absence, taken as read. In the evening the members dined together at the Randolph Hotel.

FOREIGN UNIVERSITY INTELLIGENCE.—*Munich.*—Dr. Julius Fessler of Bamberg, formerly assistant to Professor Nussbaum, has been recognised as *privat docent* in Surgery.—*Stockholm.*—Dr. J. W. Berg has been promoted to the rank of Ordinary Professor of Surgery in the Caroline Institute.—*Helsingfors.*—Dr. R. Kolster has been appointed *docent* in Pathological Anatomy.

PAISLEY INFIRMARY.—The hundredth annual report of this infirmary, which has just been issued, states that during the past year 1446 patients were under treatment, of whom ninety-four died, but fifty-four of these cases were in a dying state when admitted. At the dispensary 8094 persons were prescribed for. The income for the year was £4497 and the expenditure £4350.

WESTMINSTER OPHTHALMIC HOSPITAL.—The annual meeting of the governors of this charity was held on the 2nd inst. in the board room of the hospital, Mr. Henry Power occupying the chair. By the report of the committee of management it appears that the number of patients who came under the treatment of the medical officers was larger than in any former year, and was represented by the figure 9634, whilst the total attendances were 53,670. From its foundation in 1816 to the commencement of the present year the names of no less than 416,732 persons had been registered in the books of the institution, of whom 24,048 were in-patients. The growth of the work of the hospital necessitated, it was pointed out, an increase in the accommodation provided, so that the committee had felt bound to propose the building of a new hospital. For this purpose, and to cover the deficiency in the receipts during the past year, several prominent subscribers having been removed by death, at least £50,000 would be required, and in favour of this fund an urgent appeal was made by the chairman.

HOSPITAL CHAPLAINS' UNION.—The Hospital Chaplains' Union was founded in 1889 for the bringing together for mutual help and counsel of chaplains of the London general hospitals whose principal work is that of hospital chaplains, and who on this account would be otherwise isolated in their work. The union has just held its fourth anniversary. From the report presented we learn that the union has been successful in attaining the objects aimed at. Meetings are held quarterly, at each of which a paper is read on some subject connected directly or indirectly with hospital work. A proposal to extend the limits of the union so as to include the chaplains of other than London general hospitals was discussed and found to be impracticable at present. The Bishop of Rochester presided at one meeting, and expressed his warm sympathy with all "institutional clergy" in their comparatively solitary work. The union would be most grateful to the parochial clergy if they would send letters of commendation with parishioners when admitted to the hospital as patients. The honorary secretary of the union is the Rev. Watson King Ormsby, Summerside, Chislehurst, late chaplain of Rotunda Lying-in Hospital, Dublin, and St. Mary's Hospital, London, to whom all communications should be addressed.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward it to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week for publication in the next number.*

ARCHBOLD, J. J., M.B., C.M.Edin., has been appointed House Surgeon to the Alnwick Infirmary, vice White, resigned.

BAINES, EUSTACE A. P., M.B., has been appointed House Physician to the Hospital for Women, Soho.

BANNATYNE, GILBERT A., M.D. Glasg., M.R.C.P. Edin., has been appointed Honorary Physician to the Royal Mineral Water Hospital, Bath, vice Dr. Spender, resigned.

BEATSON, G. T., M.D., C.M., L.R.C.S. Edin., has been appointed Consulting Surgeon to the Glasgow Cancer Hospital.

BODY, H. M., M.R.C.S., has been reappointed Medical Officer of Health for the South Molton Rural Sanitary Districts.

BROWN, S. N., L.R.C.P. Lond., M.R.C.S., has been appointed House Surgeon to the Salford Royal Hospital, vice Newby, resigned.

CHILTON, R. H., L.R.C.P. Lond., M.R.C.S., has been appointed House Surgeon to the Tiverton Infirmary, vice Michelmore, resigned.

CHOLMELEY, WM., M.D. St. And., F.R.C.P. Lond., M.R.C.S., has been appointed Consulting Physician to the Great Northern Central Hospital.

COLLIER, HERBERT, M.D. Brux., L.R.C.P. Lond. and Edin., M.R.C.S. Eng., and L.S.A., has been appointed Medical Officer to the Great Yarmouth Workhouse, vice J. C. Smith, resigned.

CUFF, ROBERT, M.B. Lond., M.R.C.S., has been appointed Medical Examiner of Recruits for the Yorkshire Artillery Militia, vice Wright, retired.

FUSSELL, E. F., M.B. Aberd., M.R.C.P. Lond., has been reappointed Medical Officer of Health for East Sussex.

GEMMELL, S., M.D., C.M., F.F.P.S. Glasg., has been appointed Consulting Physician to the Glasgow Cancer Hospital.

GRAY, JOHN, M.B., C.M. Aberd., has been appointed a District Medical Officer to the Stanhope Local Board.

GRAYSON, F. D., M.R.C.S., has been reappointed Medical Officer for the Rayleigh and Hawkwell Sanitary Districts of the Rochford Union.

HARVEY, W., F.R.C.S., M., has been reappointed Medical Officer to the Newton Rural Sanitary Authority.

HERRICK, R. W., M.D., B.Ch. Dubl., has been reappointed Honorary Surgeon to the Nottingham Throat, Ear, and Nose Hospital.

HOLLIS, E., M.D., C.M. Edin., has been reappointed Medical Officer of Health, Woodbridge.

JOHNSTONE, JAMES, L.D.S.R.C.S. Edin., has been reappointed Honorary Dental Surgeon to the Nottingham Throat, Ear, and Nose Hospital.

LACK, H. LAMBERT, M.B., F.R.C.S., has been appointed Demonstrator in Surgery to King's College, London.

LAKE, WELLINGTON, D.P.H. Camb., M.R.C.S. Eng., has been appointed Medical Officer to the Guildford, Godalming, and Woking Joint Board Isolation Hospital.

LIVINGSTONE, THOS., M.D., C.M. Glas., has been appointed Medical Officer for the Stanhope Sanitary District of the Weardale Union.

MAKEPEACE, A. J., L.D.S.R.C.S., has been appointed Honorary Dental Surgeon to the Coventry and Warwickshire Hospital.

MCRITCHIE, DAVID, M.B., C.M. Aberd., has been appointed a Medical Officer to the Hants County Hospital.

MODLIN, J. G., M.B., B.S. Durh., has been appointed Medical Officer for the Monkwearmouth East Sanitary District of the Sunderland Union, vice Blumer, resigned.

MONCKTON, WM., L.R.C.P., L.M. Edin., M.R.C.S., has been reappointed Medical Officer of Health to the Portishead Local Board.

MOORE, E. COLEMAN, M.B., C.M. Edin., has been appointed Surgeon to the Edinburgh Ear and Throat Dispensary.

O'SULLIVAN, M., M.B., B.Ch. Irel., has been appointed Pathologist and Anæsthetist to the Children's Hospital, Temple-street, Dublin.

PICKEN, JAMES, M.B., C.M. Glasg., has been reappointed Medical Officer of Health for the Rawmarsh Urban Sanitary District.

PRESTON, J. M. S., M.B., C.M. Edin., has been appointed Medical Officer for the No. 3 Sanitary District of the Manchester Union.

ROOK, A. E., L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer for the Workhouse of the Eastbourne Union, vice Farmell, resigned.

RORIE, DAVID, M.B., M.S. Edin., has been appointed Medical Officer to the Denend and Dundonald Collieries, Cardenden, Fife.

RUBRA, H. H., M.R.C.S., L.R.C.P., late Assistant House Surgeon, General Hospital, Birmingham, has been appointed Assistant House Surgeon to the Cumberland Infirmary, Carlisle.

RUSSELL, C. H., M.D., M.R.C.S., has been appointed Medical Officer for the No. 1 Sanitary District of the Southampton Union.

SHEARS, CHARLES H. B., L.R.C.P. Lond., M.R.C.S. Eng., has been appointed Surgeon to the Liverpool Eye and Ear Infirmary, vice Edgar A. Browne, appointed Consulting Surgeon.

STEWART, DONALD, M.D. Glasg., L.R.C.S., L.M. Edin., has been reappointed Honorary Surgeon to the Nottingham Throat, Ear, and Nose Hospital.

TATTERSALL, C. H., L.R.C.P. Lond., M.R.C.S., L.S.Sc. Durh., has been appointed Medical Officer for Oldham, vice Nixon, resigned.

TWEEDY, R. C., L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer for Kenilworth.

WHITE, HERBERT W., L.R.C.P., L.M. Edin., L.F.P.S. Glasg., has been appointed Medical Officer for the North East Sanitary District of Bradford.

WILLS, CHARLES, M.R.C.S., has been reappointed Medical Officer of Health to the Newark Sanitary Authority.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BETHLEM HOSPITAL.—Two Resident Clinical Assistants for six months. Apartments, rations, and attendance provided. Applications to the Clerk, Bridewell Hospital, New Bridge-street, E.C.

BIRMINGHAM GENERAL DISPENSARY.—Resident Surgeon. Salary £150 per annum (with an allowance for cab hire) and furnished rooms, fire, lights, and attendance.

BOLTON INFIRMARY AND DISPENSARY.—Junior House Surgeon. Salary £80 per annum, with furnished apartments, board, and attendance.

BOOTLE BOROUGH HOSPITAL.—House Surgeon. Salary £80 per annum, with board, washing, &c.

BRADFORD CHILDREN'S HOSPITAL.—House Surgeon. Salary £70, with board, residence, and washing.

DEVONSHIRE HOSPITAL, Buxton, Derbyshire.—Assistant House Surgeon. Salary £50 per annum, with furnished apartments, board, and washing.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, Bloomsbury, W.C.—House Surgeon to Out patients (Non-resident), for six months. Salary 25 guineas.

JOINT COUNTIES' LUNATIC ASYLUM, Carmarthen.—Medical Superintendent. Salary £500 per annum, with unfurnished house, garden produce, fire, lights, and washing. Applications to the Clerk to the Visitors, Carmarthen.

KNIGHTON RURAL SANITARY AUTHORITY.—Medical Officer of Health for the whole of their district. Salary £45 per annum. Applications to the Clerk, Knighton, Radnorshire.

KNIGHTON UNION.—Medical Officer for the Begnildy District. Salary £35 per annum. Also a Medical Officer for the Brampton Brian District. Salary £20 per annum. Applications to the Clerk, Knighton, Radnorshire.

LONDON HOSPITAL, Whitechapel-road, E.—Assistant Physician.

METROPOLITAN ASYLUMS BOARD.—Four Assistant Medical Officers at the Darenth Schools for Imbeciles, near Dartford, Kent. Salary £160 per annum, rising £10 annually to £200, with board, furnished apartments, attendance, and washing. Applications to the Clerk to the Board, Chief Offices, Norfolk House, Norfolk-street, S.W.

METROPOLITAN HOSPITAL, Kingsland-road, N.E.—House Physician, House Surgeon, and Assistant House Surgeon for six months. The House Physician and House Surgeon will each receive a salary at the rate of £60 a year.

MILLER HOSPITAL AND ROYAL DISPENSARY, Greenwich-road, S.E.—Junior Resident Medical Officer, for six months. Salary at the rate of £30 per annum, with board, attendance, and washing.

NATIONAL ORTHOPÆDIC HOSPITAL, 234, Great Portland-street, W.—Assistant Surgeon.

NORFOLK COUNTY ASYLUM, Thorpe, Norwich.—Junior Assistant Medical Officer. Salary £110 per annum, increasing £10 annually to £150, with board (no beer), lodging, and washing.

ROYAL COLLEGE OF PHYSICIANS, Pall Mall East.—Milroy Lecturer.

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City-road, E.C.—House Physician for six months. Salary at the rate of £40 per annum, with board and lodging.

ROYAL SURREY COUNTY HOSPITAL, Guildford.—Assistant House Surgeon. Board, residence, and laundry provided.

SHEFFIELD PUBLIC HOSPITAL AND DISPENSARY.—Assistant House Surgeon, and also Junior Assistant House Surgeon, unmarried. Salary £65 and £50 respectively, with board, lodging, and washing.

TAUNTON AND SOMERSET HOSPITAL, Taunton.—Assistant House Surgeon for six months. Board, washing, and lodging in the institution provided.

THE GENERAL HOSPITAL, BIRMINGHAM.—Two Assistant House Surgeons for six months. Residence, board, and washing provided.

TUNBRIDGE WELLS GENERAL HOSPITAL.—Resident House Surgeon, unmarried. Salary £100 per annum, with board, furnished apartments in the hospital, gas, firing, and attendance.

WEST-END HOSPITAL FOR NERVOUS DISEASES, &c., 73, Welbeck-street, W.—Anæsthetist, for twelve months.

YORKSHIRE COLLEGE, Leeds.—Professor of Pathology.

Births, Marriages and Deaths.

BIRTHS.

BAREFOOT.—On March 5th, at Pembroke-road, Kensington, the wife of Surgeon-Captain G. H. Barefoot, Army Medical Staff, of a son.

GAGE-BROWN.—On March 5th, at 74, Cadogan-place, S.W., the wife of C. H. Gage-Brown, M.D., of a daughter.

GUNN.—On March 2nd, at Widdrington, Northumberland, the wife of F. W. Gunn, M.D., M.R.C.S., L.R.C.P. &c., of a son.

GWYNNE.—On Feb. 27th, at Jamaica-road, S.E., the wife of Dr. J. H. Gwynne, of a daughter.

JOHNSON.—On March 4th, at Weymouth street, Portland-place, the wife of Raymond Johnson, M.B., F.R.C.S., of a daughter.

MARTIN.—On Feb. 28th, at Cheyne-row, Chelsea, the wife of Dr. Benjamin Ellis Martin, of a son.

MARRIAGES.

EASTMENT—WALKER.—On March 1st, at St. Mary Magdalene's, Addiscombe, John Willot Eastment, M.R.C.S., L.R.C.P., second son of the late Francis Meade Eastment, Drayton, Somerset, to Frances Mary, only child of Mr. T. W. Walker, of Addiscombe, Surrey.

FAULCONER WRIGHT—HOPEWELL.—On Feb. 28th, at St. Luke's Church, Kew-gardens, Sydney Faulconer Wright, M.B. Lond., M.R.C.S. Eng., youngest son of the late W. V. Wright, of Highlands Bickley-park, Kent, to Margaret Edith, youngest daughter of E. W. Hopewell, of Belvoir, Kew-gardens and Brighton.

GRAY—HASTINGS.—On Feb. 28th, at St. Margaret's, Ilkley, Alexander Charles Edward Gray, M.B., Elm-park-gardens, South Kensington, to Mabel, third daughter of the late Charles Hastings, Bradford.

DEATHS.

ANWYL.—On March 2nd, at Rio de Janeiro, J. Norman Anwyl, M.R.C.S., L.R.C.P. Lond., the eldest, dearly loved, son of J. Warren and Catherine Anwyl, Abingdon, who died of yellow fever. Deeply mourned.

DICKINSON.—On Feb. 28th, Charles Dickinson, Surgeon R.N., aged 31, second son of Thomas and Marion Dickinson, of St. Vincents, Denmark-villas, West Brighton.

JACOB.—On March 1st, at Park street, Leeds, aged 44 years, Ernest Henry Jacob, M.A., M.D.

MACPHERSON.—On the 1st inst., at 251, Bath-street, Glasgow, Robert Macpherson, M.D., aged 39 years.

MORRIS.—On March 1st, of paralysis, in his 48th year, Dr. de Courcy Morris, late of Shepherd's Bush.

WITHERBY.—On the 3rd inst., William Henry Witherby, M.A. Oxon., M.D. Dublin, only son of the late William Henry Witherby, of Coombe-lane, Croydon.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, March 8th, 1894.

	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Dry Bulb.	Wet Bulb.	Solar Radia in Vacuo.	Maximum Temp. Shade.	Min. Temp	Rainfall.	Remarks at 8.30 A.M.
Mar. 2	30·04	W.	40	39	89	53	39	0·14	Cloudy
,, 3	30·22	W.	39	38	93	53	35	—	Hazy
,, 4	30·09	S.W.	43	41	80	52	39	..	Cloudy
,, 5	30·35	S.W.	37	35	89	52	34	..	Hazy
,, 6	29·64	W.	44	42	92	54	37	0·11	Cloudy
,, 7	29·88	N.W.	40	39	75	50	38	..	Fine
,, 8	29·62	N.W.	42	47	53	50	40	0·02	Raining

Medical Diary for the ensuing Week

OPERATIONS.

METROPOLITAN HOSPITALS

MONDAY.—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (1 P.M.), St. Mark's (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynecological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.).

TUESDAY.—London (2 P.M.), St. Bartholomew's (1.30 P.M.), Guy's (1.30 P.M.), St. Thomas's (3.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mark's (1.30 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.).

WEDNESDAY.—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), Great Northern Central (2.30 P.M.), King's College (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (2.30 P.M.), Great Ormond-street (9.30 A.M.).

THURSDAY.—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (2 P.M.), Chelsea (2 P.M.), Soho-sq. (2 P.M.), North West London (2 P.M.)

FRIDAY.—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.) Charing-cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.)

SATURDAY.—Royal Free (9 A.M. and 2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), University College (9.15 A.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), Cancer (2 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

TUESDAY.—ROYAL MEDICAL AND CHIRURGICAL SOCIETY.—Mr. THOMAS H. MORSE (Norwich): Ruptured Gastric Ulcer treated by Laparotomy, Gastric Suture, and Washing out of the Peritoneum; Recovery (communicated by Mr. Barwell).—Mr. C. B. Lockwood: A case of Resection and immediate Suture of Intestine which had been Strangulated Eighty-one Hours; Recovery.

WEDNESDAY.—LARYNGOLOGICAL SOCIETY OF LONDON (20, Hanover-square, W.).—5 P.M. Dr. J. B. Ball: A case of Fixation of Vocal Cord of doubtful origin.—Dr. De Havilland Hall: (1) Closure of a Tracheal Fistula of Twenty-one Years' Duration; (2) Larynx of Patient previously shown with Syphilitic Stenosis.—Dr. A. A. Kanthack: Naked-eye Specimen of Pachydermia Laryngis.—Dr. Felix Semon: Two cases of Malignant Disease of the Larynx cured by Thyrotomy and Excision of the Neoplasms.—Dr. Scanes Spicer: A Laryngeal Neoplasm of apparently sudden origin.—Mr. W. R. H. Stewart: Unilateral Laryngitis.—Mr. C. J. Symonds: (1) Syphilitic Stenosis of Larynx wearing a Tracheotomy Tube: (2) Pachydermia Laryngis; (3) Lunated Fold of Mucous Membrane (undescribed?) Protecting the Middle Meatus.—Dr. H. Tilley: (1) Paralysis of Left Vocal Cord; (2) Advanced Tubercular Disease of Larynx.

HUNTERIAN SOCIETY.—8.30 P.M. Pathological Evening. Dr. William Ettles: Cast of a case of Monocculous Fœtus or Cyclops.—Dr. Turner: Dilatation of Stomach.—Dr. Manson: (1) Sputum from a case of Pulmonary Distomiasis: (2) Malaria Parasite.—Dr. James Galloway: (1) A Peculiar Form of Secondary Growth in Carcinoma; (3) Extra-uterine Fœtation.—Mr. Charters J. Symonds: (1) Extra-uterine Fœtation; (2) Fibroid of Uterus (both removed by hysterectomy); (3) Vermiform Appendix containing a Pin.

THURSDAY.—HARVEIAN SOCIETY.—8.30 P.M. Discussion on Influenza, to be opened by Dr. Samuel West.

SOCIETY OF ANÆSTHETISTS (20, Hanover sq.).—8.30 P.M. Mr. Richard Gill: The Relation of the Pupil to Anæsthesia.

LECTURES AND ADDRESSES.

TUESDAY.—ROYAL INSTITUTION.—3 P.M. Prof. Charles Stewart: Locomotion and Fixation in Plants and Animals.

WEDNESDAY.—WEST LONDON HOSPITAL (Hammersmith, W.).—5 P.M. Mr. Percy Dunn: Foreign Bodies in the Eye and Ophthalmic Cases. (Post graduate Course.)

THURSDAY.—ROYAL INSTITUTION.—3 P.M. Prof. Max Müller: The Vedânta Philosophy.

FRIDAY.—ROYAL INSTITUTION.—9 P.M.—Lord Rayleigh: The Scientific Work of Tyndall.

SATURDAY.—ROYAL INSTITUTION.—3 P.M. Lord Rayleigh: Light, with special reference to the Optical Discoveries of Newton.

During the week marked copies of the following newspapers have been received:—*Yarmouth Independent, Goston Reporter, Swansea City Herald, Kettering Guardian, Hereford Times, Southampton Times, Kingston Express, Abingdon Herald, Crewe Advertiser, Bradford Observer, Evening Mail (Portsmouth), Science Siftings, Stratford-upon-Avon Herald, Shrewsbury Chronicle, Cornwall Gazette, Darlington Echo, Wigan Examiner, Bury and Norwich Post, Llangollen Advertiser, Irish News, Chicago Evening Post, Middlesex City Times, Leigh Chronicle, Oldham Standard, Birmingham Daily Post, Le Temps (Paris), Oban Times, Cannock Chase Courier, Citizen, Scotsman, &c., &c.*

Notes, Short Comments & Answers to Correspondents.

EDITORIAL NOTICE.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this Office.

Lectures, original articles, and reports should be written on one side only of the paper.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers, not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET should be addressed "To the Publisher."

We cannot undertake to return MSS. not used.

PUBLISHER'S NOTICE.

IN order to facilitate the work of reference to the volumes of THE LANCET, we have arranged to publish duplicate copies of the Index to each half-yearly volume in a form in which they may be subsequently filed or bound together. Those of our subscribers who may wish to be supplied with loose copies can obtain the same (without extra charge) on making application to the Publisher of THE LANCET.

TERATOLOGY.

AS far as it goes, Geoffroy St. Hilaire's great treatise on Monstrosities ("Tératologie") is admirable, but year by year we are more and more reminded that it requires re-editing. Instances of *lusus naturæ* show little or no tendency to decrease wherever the normal type may be maintained by improved nutrition and more stringent observance of the laws of health. A case in point is announced from Strasburg. In the military hospital there a soldier, whose health had always been excellent, was admitted for bronchitis, but on examination was found to have his heart on the right side and his liver on the left. To this abnormal arrangement of the viscera there was added the farther peculiarity that the spleen was situated at the right side and that the left lung was a third larger than its fellow on the other side. As soon as his bronchitis was cured the soldier was presented to the medical faculty of Strasburg, who made official note of the anatomical deviations. A precisely similar case to this was in April, 1878, admitted into the military hospital at Turin, and was, in fact, described by a physiologist of that school in the *Gazzetta del Popolo* of the same month and year. The man belonged to the Third Bersaglieri—the crack infantry regiment of the Italian army—and was quite equal to the rapid, double-quick marching and exceptionally severe discipline of the corps. A more sensational instance of monstrosity is just reported from Leghorn. In the maternity wards of the Ospedale Civico of that city a woman gave birth last week to a fœtus after nine months' pregnancy. From the neck to the ankles the body is seemingly normal, but from the neck itself there rise two heads, and from the axillæ there project four legs—two on each side. "Seemingly" normal, however, describes the body of the fœtus only when superficially inspected. It presents absolutely no indication by which the sex can be determined. The fœtus was born dead and is now, with due precaution, preserved in the hospital museum. The mother, according to Dr. Giuseppe Coen (from whose official report the above details are derived) is doing very well.

SALINE ENEMATA IN HÆMORRHAGE.

To the Editors of THE LANCET.

SIRS,—Dr. Warman's treatment of saline enemata for severe hæmorrhage, detailed in THE LANCET of the 24th ult., p. 492, was described in that journal by Dr. Gill in 1888, vol. ii., p. 863; also in 1892, and subsequently many observers have confirmed the value of this mode of administering the saline solution, as will be noted in the next Appendix of the "Medical Digest." I am, Sirs, yours truly,

Boundary-road, N.W., March 1st, 1894. RICHD. NEALE, M.D. Lond.

SUGAR *versus* ERGOT.

ACCORDING to Professor Mosso and Dr. Paoletti of Genoa, the best and simplest method of exciting uterine action in confinements is by giving sugar. In ten out of eleven cases in which they tried it an ounce of sugar dissolved in half a tumbler of water produced a decided effect in from half to three-quarters of an hour. Sometimes a second dose was required in order to terminate the labour. The contractions were always of a regular, never of a tetanic, character.

G. E. S.—We have not submitted to test the burner which our correspondent mentions, but there is no reason for thinking that the products are worse than the Bunsen burner. The products of a Bunsen burner are generally more complete than an ordinary fish-tail flame—that is, if it be properly adjusted. In any case the room in which gas burners are used should be efficiently ventilated. Our correspondent will find any further information he may desire in the article devoted to gaseous fuel in THE LANCET, Nov. 25th, 1893.

Mr. T. Howard Brocklehurst.—Our correspondent's letter excites many reflections; but we should require to know many more particulars before pronouncing judgment between him and his principal. The General Medical Council has no power of dealing with such cases of difference between medical men in regard to questions of a business rather than of a professional character.

Alpha.—We cannot make an exception to our rule in reference to recommending practitioners.

Mr. W. T. Davies.—We see no objection to such a description; and it is now somewhat usual.

INFLUENZA—ITS ETIOLOGY AND TREATMENT.

To the Editors of THE LANCET.

SIRS,—Considering the enormous prevalence of influenza during the past four years, it is amazing to note the variety of opinions both as to its cause and treatment. I have now treated over seven hundred cases without a death, which fact encourages me to explain as briefly as possible my views on the cause and treatment of this great plague.

Just as the tubercle bacillus can only thrive and multiply in debilitated constitutions, so the microbe of influenza can only multiply in a system which is abnormal. In Russia we find that the poverty-stricken peasants were struck down in thousands. This was no doubt owing to bad food, but chiefly owing to the lack of variety in the food, causing acidity of the blood and various secretions—a condition peculiarly favourable for the reception and multiplication of the influenza poison. In our own country we notice that the people who are chiefly affected are those who take too much meat food, or who live sedentary lives. Amongst the upper and middle class population the one to suffer most is the man who performs a large amount of public business, who has little time to devote to active exercise or recreation, and who feels the need of stimulating food. In the lower ranks of life we find the bread-winner is first stricken down—the one who receives the most animal food and who has often little time to eat it. The Russian peasant, the public business man, the English labourer, all develop by their system of living a vitiated constitution, liable at any time to be attacked by influenza. Instead of milk, eggs, and vegetables—our chief compound and natural foods—there is a craving for a more stimulating diet, which increases muscle, blood fibrin, and red corpuscles, but deprives many of the secretions of their normal alkalinity. As a consequence, when attacked with influenza the strong man falls; there is increased fever from the changes set up in the blood fibrin and corpuscles and the altered secretions. At the same time, secondary mischief is more likely to be developed in the respiratory organs, nourished by acid serum, and filled and irritated with acid blood.

Treatment.—Preventive: Live on milk, eggs, and vegetables, with but little or no animal food. Take regular meals and bodily exercise. A little potash water daily when the epidemic is prevailing, or a little bicarbonate of potash in milk. Curative: I always use bicarbonate of potash, which reduces the fever as quickly as the salicylates or antipyrin; but, what is most important, it prevents complications, frees the loaded kidneys and urine, the stomach and bowels, and dissolves the acid mucus in the lungs. The fever subsides because all the secretions become more natural, and the loaded excretions bear dumb, but no less valuable, testimony as to the treatment and what it ought to be. Curiously enough, there are many medical men who still prescribe quinine—a drug most dangerous and certainly contra-indicated in the acute stage of influenza, and which is generally harmful afterwards; at least, I have mostly found that it retards recovery. In the acute stages bicarbonate of potash in water, in milk, and as potash water can be effectively introduced. Soda and ammonia I have not found good in themselves, but sometimes useful adjuncts. The preparations of strychnine and change of air I find best for the after-debility; but this part of the disease, though sometimes prolonged and intermittent, is practically unimportant compared with the first stage, the treatment of which often means life or death. I adopt the treatment inaugurated by Mr. Crerar, a gentleman I have never seen, but to whom the thanks of the profession are due. I have purposely said nothing about infection, as the subject is too large for a letter of this kind.

I am, Sirs, yours truly,

Holbeach, March, 1894. THOS. JACKSON, L.R.C.S. Edin.

A MEDICAL SCHOOL FOR CHINA.

UNTIL within recent years all attempts of the Western nations to shed light on the dense darkness of ignorance and superstition which, under the name of learning, has ever characterised the inhabitants of the Celestial Empire have been steadily resisted by the Chinese. In the month of December of last year an Imperial Medical College for native students was opened at Tientsin, the ceremony being performed by the Viceroy. The equipment of the chemical, physical, and physiological laboratories is not yet complete. In the meantime the students are undergoing a preliminary course of instruction in chemistry, and anatomy will be studied from French models in wax. There are twenty-three native students who speak the English language.

Myope (Devizes).—He is considered unfit, we believe, unless he can read with each eye, separately, without glasses, Snellen's type marked D=36 at a distance of twenty feet, one sixth of Snellen's standard of normal acuteness of vision. Our correspondent might apply for a copy of the regulations.

Mr. T. I. Dewar.—The suggestion by our correspondent is, we believe, new, and is certainly ingenious. We shall be glad to hear the result of his wearing the glasses described after the lapse of a year.

C. A.—It is impossible to answer such a question without knowing full particulars both from our correspondent and from the practitioner. There can be no settled custom.

Mr. Basil Conway will see that we have dealt with the subject in an annotation and practically answered his queries.

WHAT BECOMES OF WOMEN MEDICAL STUDENTS

To the Editors of THE LANCET.

SIRS,—The figures quoted from the *Revue Scientifique* in THE LANCET of Feb. 24th with regard to lady medical students at Geneva have led me to examine the statistics of the London School of Medicine for Women, and the comparison may not be without interest.

In the first fifteen years from the foundation of the school—1874 to 1888 inclusive—190 students entered for the full course. Of these, 159 have qualified, 32 abandoned their studies, and 9 are still students. Of the students who entered in the two following years—1889 and 1890—the majority have not yet had time to qualify but the statistics are as follows: 64 students entered—6 of these have fallen from the ranks, 7 have already qualified, and the remainder are still working for their examinations. Thus, in all, 38 students, or 14 per cent. of the whole number, have given up work—14 did so on their marriage, 6 from ill-health, and the remaining 18 for various reasons. Of the 163 students who have qualified 9 have died, 19 are known to be in practice, and 28, or about 14 per cent., have relinquished their profession. It would be interesting to know what relation these figures bear to those of other medical schools. In Sir James Paget's well-known article, "What Becomes of Medical Students?" in St. Bartholomew's Hospital Reports, I find that of the 1000 students whose history has been investigated by him, 8 per cent. never qualified, and at least 8 per cent. of those who qualified left the profession within twelve years. These percentages are, it is true, considerably smaller than the corresponding ones for the London School of Medicine for Women, but, considering the different conditions which apply to women, and how frequently marriage or the claims of relations are impediments to further progress, it can hardly be said, whatever may be the case at Geneva, that women medical students in England are lacking in steadfastness of purpose or devotion to the work they have undertaken.

I am, Sirs, yours faithfully,

F. MAY DICKINSON BERRY, M.D. Lond.,
Feb. 28th, 1894. Assistant Physician, New Hospital for Women.

CHICKEN-POX IN ADULTS.

To the Editors of THE LANCET.

SIRS,—I recently attended a family in which three children had well-marked chicken-pox infection conveyed by the mother, who had visited a friend whose child was convalescent from the same complaint. The mother, aged thirty-one, had a slight rise of temperature, 100° F., and vesicles appeared on the chest, back, and abdomen, with a few on the face. Subsequently they came out in a succession of crops and quickly scabbed over. Beyond the slight rise of temperature and headache there were no other constitutional symptoms. My excuse for troubling you is that I read in Fagge the following:—"Most writers say they have never seen it in grown up patients; but Heberden relates one case in which a mother caught it from her children, and another instance of it in an adult female was observed by Gregory." I should be glad to know if this is so.

I am, Sirs, yours truly,

March 3rd, 1894. MALCOLM MARGRAVE.

*** Chicken-pox is no doubt a rare disease in adults in this country, probably because children seldom escape attack by it. We know, however, of cases of the occurrence of this disease in a number of African coal trimmers in a homeward-bound vessel from India, who were infected by an English child suffering from chicken pox. This child, for the purposes of isolation from other children, had been placed in the surgeon's cabin overlooking the engine-room, through which these men passed.—ED. L.

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